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May 14, 2015  
File No. 18605.00

GEOTECHNICAL  
ENVIRONMENTAL  
ECOLOGICAL  
WATER  
CONSTRUCTION  
MANAGEMENT

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Mr. Daniel Keefe  
United States Environmental Protection Agency – Region I  
5 Post Office Square  
Suite 100  
Mailcode: OSRR07-03  
Boston, MA 02109

RE: 2014 Annual Monitoring Report  
Norwood PCB Superfund Site  
Norwood, Massachusetts

Dear Mr. Keefe:

GZA GeoEnvironmental, Inc. (GZA) has prepared this report to fulfill the requirements of the Operation and Maintenance Plan and the Environmental Monitoring Work Plan for the above referenced Site, both published by GZA in 2004 and updated in 2010 to reflect recent redevelopment of the Site. This report describes the results of scheduled operation, maintenance and sampling activities that have been performed by GZA in the calendar year 2014 on behalf of the Norwood PCB Superfund Site Remediation Trust.

Please contact the undersigned with any questions or if you require additional information.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

Russell B. Parkman, P.E.  
Senior Project Manager

Patrick F. Sheehan, P.E.  
Consultant/Reviewer

Albert J. Ricciardelli, P.E., LSP  
Senior Principal

cc: Dave Buckley – MADEP  
Jonathan Ettinger, Esq. – Foley Hoag  
Howard Weir, Esq.

Attachment: 2014 Annual Monitoring Report

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**2014 ANNUAL MONITORING REPORT  
NORWOOD PCB SUPERFUND SITE  
NORWOOD, MASSACHUSETTS**

**PREPARED ON BEHALF OF:**

The Norwood PCB Superfund Site Remediation Trust  
Norwood, Massachusetts

**PREPARED BY:**

GZA GeoEnvironmental, Inc.  
Norwood, Massachusetts

May 2015  
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## 1.00 INTRODUCTION

This 2014 Annual Monitoring Report (Report) has been prepared for the Norwood PCB Superfund Site in Norwood, Massachusetts (the Site). This Report describes the scheduled operation, maintenance and sampling activities that were performed by GZA GeoEnvironmental, Inc. (GZA) during the 2014 calendar year on behalf of the Norwood PCB Superfund Site Remediation Trust to assess the protectiveness and performance of the Settling Defendants' Remedial Action (RA) performed at the Norwood PCB Superfund Site (the "Superfund Site").

This report has been prepared in accordance with the United States Environmental Protection Agency (EPA) approved Environmental Monitoring Work Plan (EMP) and Operation and Maintenance Plan (O&MP) prepared for the Site. These plans were prepared in 2004 and updated in 2010 to reflect recent development of the Site.

### 1.10 SITE LOCATION AND DESCRIPTION

The Norwood PCB Superfund Site, as defined by the 1989 Record of Decision (ROD) which was subsequently amended on May 17, 1996, encompasses approximately 26 acres in an industrial/commercial area in Norwood, Massachusetts. The Superfund Site consists of several parcels of land including the Hurley property<sup>1</sup>, residential properties to the north of the Hurley property, several properties on Kerry Place (excluding Lots 12 and 13), and adjacent parking areas and fields. The portion of the Superfund Site that was the subject of the Settling Defendants Remedial Action (the "Site") extends north to Meadow Brook, east to U.S. Route 1 and the Dean Street Access Road, south to Dean Street, and west to Pellana Road, and includes the portion of Meadow Brook located between the Hurley property and the Dean Street culvert. A Locus Plan is provided in Figure 1.

The Hurley property (referred to as the "Property" or "on-Property") comprises approximately 8.6 acres of the Norwood PCB Superfund Site. The Property, formerly occupied by the Grant Gear building and adjacent paved parking areas, was used from the 1940's through 1979 to manufacture electronic equipment and from 1979 to 1994 to manufacture gears.

In 2011, the Hurley Property was conveyed to MonkeySports Capital MA, LLC by deed recorded at the Norfolk County Registry of Deeds on May 20, 2011, Book 28813, Page 469.

Investigations performed on Site between 1983 and 1996 indicated elevated levels of polychlorinated biphenyls (PCBs) in several media, as identified below:

- Surficial soils on-Property;
- Subsurface soils on-Property;

<sup>1</sup> The subject property, formerly owned by John Hurley, has been sold since work began at the Site; however, for consistency with previously submitted reports, we will continue to refer to the subject Property as the Hurley property.



- Sediments in the adjacent Meadow Brook; and,
- Portions of the Grant Gear building.

In addition, the investigations identified a localized area on the west side of the Property contaminated with 1,2,4-trichlorobenzene (1,2,4-TCB) in the saturated zone soil. The identified PCB and 1,2,4-TCB contamination were addressed under the Remedial Action (RA) performed by GZA.

#### 1.20 REMEDIAL ACTION

The amended ROD for the Superfund Site (dated May 17, 1996) required performance of the following activities to mitigate risk associated with the identified contamination in soil, sediment and building materials:

- Demolition of the Grant Gear building with on-Site and off-Site disposal and recycling of building materials (completed January 1997).
- Removal of certain contaminated sediments from Meadow Brook and the Dean Street culvert, with excavated sediments consolidated on-Property (completed August 1997).
- Excavation and on-Property consolidation of certain contaminated soils from the Site (completed December 1997).
- Capping and covering of certain on-Property areas (completed mid 1998). An asphalt Cap was placed over certain areas containing PCB-impacted soils and building materials, and a Cover was placed over areas excavated during the soil/brook remediation phase of the RA.
- Closure of an on-Property underground storage tank (UST). A second UST identified during the RA was also addressed.

GZA commenced remedial activities on the Hurley Property in late 1996. The first phase of the RA included demolition of the Grant Gear building, consolidation and containment of selected contaminated building materials within the subsurface boiler room and placement of a structural cap over the boiler room. This phase also included stockpiling of certain materials for eventual placement beneath the asphalt Cap and Cover areas constructed during the Soil/Brook Remediation phase of the RA at the Site. A significant portion of the Soil/Brook Remediation phase of work was conducted in 1997. The activities completed during the 1997 phase of the soil/brook remediation included excavation of Meadow Brook sediments to the grades established in the Army Corps of Engineers' (ACOE) brook restoration plans and specifications dated March 1996, excavation of on-Property PCB-impacted soils, and consolidation of excavated materials on-Property. Construction of the asphalt Cap and dense grade Cover was completed during the summer of 1998 concluding the construction phase of the RA. Punch list items were completed



between July 30, 1998 and May 2, 2002. The work was conducted in accordance with the Remedial Action Work Plan (RAWP) and the associated Project Operations Plan (POP). At 921, Inc.'s (i.e., the property owner at the time) direction and with EPA's approval, certain redevelopment activities, including the installation of a Cape Cod berm, and the installation of asphalt paving in Cover and non-Cap/non-Cover areas were not performed by GZA. To satisfy the Massachusetts Department of Environmental Protection's (MADEP) Stormwater Management Policy requirements, some redevelopment activities were subsequently performed by the Site owner – a portion of the asphalted area was extended to tie into nearby catch basins and berms were installed to direct sheet flow. The design for this work was prepared by Toomey-Munson & Associates, Inc. (TMA) and was reviewed and approved by the EPA. A copy of the design plan was provided in Appendix A of the 2004 O&MP. According to EPA, the work was completed in August 2000, inspected by ACOE, and found to be acceptable.

In May of 2008, construction began for retail development on the Property and was substantially completed in 2009. This work was performed in accordance with the October 2006 Revised Work Plan for Redevelopment which was approved by EPA on October 30, 2006 as well as Supplements to that Work Plan dated January 21, 2008 and March 24, 2008. The development consists of a one-story retail building in the northern portion of the Property, and a one-story retail building in the eastern portion of the Property. Two one-story restaurants in the southern portion of the Site (on the former Reardon property) have been proposed, but were not constructed. Figure 2 shows a plan view of the new buildings, Cap areas and monitoring well locations. The retail buildings are located in the Cover and non Cap/non-Cover areas. The restaurants were proposed to be located in the non Cap/non-Cover area. The Cap area and portions of the Cover and non Cap/non-Cover areas have been paved for parking. Landscaping for the Cover area utilizes an, essentially, impermeable root barrier and drainage system which will restrict vegetation roots from contacting the Cover area material and drain water from within the landscaped area to the storm drain system. The Cap in place prior to construction was not altered or breached. New pavement placed over the Cap is separated from the Cap with a marker barrier and drainage layer.

### 1.30 PURPOSE

In accordance with the requirements of the scope of work identified in the EMP, this Annual Report has been developed to report and evaluate the results of semi-annual monitoring of groundwater, as well as to document the monitoring and maintenance activities associated with the Cap and Cover under the O&MP. Monitoring of groundwater is used to evaluate trends and compare detected concentrations of Constituents of Concern (COCs) with the Site specific Risk Based Action Levels (RBALs). The Cap and Cover are periodically, visually evaluated to confirm that they are intact and, if necessary, repaired. The O&MP provides a more detailed description of the monitoring and maintenance requirements for both the Cap and Cover.



Surface water and sediment sampling is conducted on a bi-annual basis to support EPA's periodic reviews of the remedy. Surface water and sediment sampling was conducted in November of 2014 and the results are presented in this report.

## **2.00 GROUNDWATER SAMPLING**

The EPA-approved EMP specifies the collection and analysis (for PCB and volatile organic compounds (VOCs)) of groundwater samples from specific areas of the Site every six months. Samples were collected for the spring sampling event on June 30, 2014 and for the Fall sampling event on November 21, 2014 from the following monitoring wells:

- MW-1A;
- MW-EW-11 (relocated as replacement for MW-2A);
- MW-3A-R;
- ME-10 (as a replacement for ME-11A);
- ME-17(B-4) (relocated); and
- B-28 (relocated)

Locations of the monitoring wells sampled in 2014 are shown in Figure 2. GZA provided EPA notice prior to both sampling events.

Samples collected in June 2014 and November 2014 were submitted to the ESS Laboratory for PCB analysis via EPA Method 8082 (Extraction Method 3510) and VOC analysis via EPA Method 8260B. Laboratory analytical results are provided in Appendix C.

### **2.10 SAMPLE COLLECTION PROCEDURES**

Groundwater sampling was performed in accordance with the Standard Operating Procedures (SOPs) included as Appendix A of the EMP and the Quality Assurance Project Plan (QAPP). Groundwater samples were collected in accordance with the EPA Region I Low Flow Sampling Procedure (August 10, 1994).

Groundwater removed from the wells during well development and sampling was allowed to recharge through the subsurface as discussed in the EMP.

## **3.00 MEADOW BROOK SEDIMENTS AND SURFACE WATER SAMPLING**

The EMP specifies collection and analysis for PCB's of sediment and surface water samples from different areas of Meadow Brook every two years. GZA collected a total of four sediment samples, including one duplicate, and four surface water samples, including one duplicate, from three separate areas in Meadow Brook as identified on Figure 2.

Sediment and surface water samples for this monitoring period were collected from the selected locations on November 21, 2014. Grab sediment samples were collected from the top 6 inches of the sediment of the stream centerline. Grab surface water samples were collected in approximately the same area as the sediment samples. Samples were submitted to the ESS Laboratory for PCB analysis via EPA Method 8082 (Extraction Method 3510). Laboratory analytical results are provided in Appendix C.

## **4.00 ANALYTICAL RESULTS**

### **4.10 GROUNDWATER**

A summary of the results for COCs detected in groundwater samples collected by GZA in 2014 is presented in Table 1, along with the site-specific RBALs for these COCs. Table 1 presents those compounds that were detected for which RBALs have been developed. In addition to the compounds presented in Table 1, the following compounds for which RBALs do not exist were detected in groundwater samples collected in 2014; chlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, acetone, and 1,2,3-trichlorobenzene. The concentrations of compounds for which Site-specific RBALs have not been developed were below the current Massachusetts Contingency Plan RC-GW-2 Reportable Concentrations with the exception of chlorobenzene which was detected in monitoring well MW-1A in the fall sampling event at 398 micrograms per liter ( $\mu\text{g/L}$ ), and has a RC-GW-2 Reportable Concentration of 200  $\mu\text{g/L}$ . Chlorobenzene has historically been detected onsite at similar concentrations in monitoring well MW-1A. The concentrations of volatile organic compounds (VOCs) and PCBs detected in groundwater samples collected from sampled monitoring wells continued to be below their respective RBALs. The November 2014 duplicate sample was taken at MW-1A. There appears to be a discrepancy in total PCB concentration between MW-1A and the duplicate sample. The laboratory QA/QC information was reviewed; however the laboratory reports did not note any qualifiers for PCB analyses of these samples.

Table 2 presents a comparison of the maximum detected concentrations for each of the two sampling rounds conducted by GZA in 2014 to historical maxima from the 2001, 2002, and 2005 through 2013 monitoring events. As indicated in Table 2, the levels of COCs detected in groundwater samples collected in 2014 were generally within the same order of magnitude or less than historical data.

### **4.20 MEADOW BROOK SEDIMENT AND SURFACE WATER**

The analytical results indicate that total PCB levels were below laboratory detection limits in the surface water samples collected in November 2014. Total PCB levels were detected at a concentration of 1,510  $\mu\text{g/kg}$  in the sediment sample SED-3, and below the detection limit in sediment samples SED-1 and SED-2. The duplicate sample was collected at the SED-1 location and



total PCBs were not detected at concentrations above the detection limit. Table 3 contains a summary of the surface water and sediment sample results and Appendix C contains the laboratory analytical results. The concentration detected at SED-3 is slightly above the sediment cleanup goal established in the Record of Decision for the Site (1,000 ug/kg).

## 5.00 OPERATION AND MAINTENANCE

The Cap and Cover areas were visually inspected by GZA personnel twice during 2014. Additionally, the conditions of Site structures such as monitoring wells, drainage structures, and the detention basin were inspected during this time. During the 2014 monitoring period, visual inspections occurred in the spring on June 30, 2014 and in the fall on November 21, 2014.

### 5.10 VISUAL OBSERVATIONS

During the spring and fall inspections, minor cracks were observed in the building slabs, but there was no visual evidence of significant differential building settlement. Limited amounts of fallen stone and miscellaneous debris (i.e. garbage, overgrowth, etc.), were observed in the detention basin. The banks had sufficient stone to remain protected. No significant settlement of monitoring wells was observed during either the spring or fall inspection dates. During the June 2014 inspection, cracks in the asphalt were observed by GZA in the vicinity of Retail B (Pad 3) and Retail A (Pad 1).

GZA also observed several cracks and potholes within the asphalt in the Cap area in the vicinity of motoring well MW-1A during June 2014 inspection. The sections of asphalt that were noted during the June 2014 inspection were repaired during the fall of 2014. GZA observed and photographed the repaired sections during the November 2014 inspection. There is no evidence of significant differential settlement in those areas, and no indication that the seams had developed into cracks or that the Cap was compromised.

The portions of concrete slab left out of the rear of the Retail A building (as identified in the foundation plan drawing 0598 S-100b prepared by CREATE Architectural Planning and Design (01/07/08) and included in Attachment A to the January 21, 2008 Supplemental Submittal) were installed in 2011. The portions of concrete slab left out of the rear of the Retail B building remain unfinished. The Operation and Maintenance Checklist for 2014 is presented in Appendix A. Photographs from the inspections are presented in Appendix B. Field notes for the spring and fall of 2014 are included in Appendix D.

### 5.20 MAINTENANCE ACTIVITIES

The property owner repaired several cracks and potholes within the Cap area during the summer of 2014.



## 6.00 FIVE YEAR REVIEW

EPA completed a Five Year Review for the Site on December 18, 2014. The review concluded that:

- “Short-term protectiveness has been achieved”.
- “...a new condition affecting long-term protectiveness was identified. Specifically, gaps around raised concrete parking lot “islands” (a redevelopment feature) allow water to infiltrate between layers of asphalt and likely causing premature deterioration of the parking lot surface (i.e., the cap).” The Five Year Review recommended that the joints between the surface coat of asphalt and stamped concrete parking lot islands be sealed by December 1, 2015. We understand that this will be the responsibility of the Property owner.
- There is the potential for private wells to be installed in the vicinity of the Site which could affect contaminant migration in groundwater. The Five Year Review recommended that EPA conduct a field inventory of existing wells in the vicinity of the Site prior to December 1, 2015 and “that GZA (on behalf of the Settling Parties) annually review Town of Norwood well-installation permit applications to determine if any wells have been installed within a 500-foot radius of the Site”

## 7.00 FUTURE MONITORING ACTIVITIES

Given the results of the Five Year Review, GZA recommends the following modifications to the monitoring activities at the Site:

- Given the steady or decreasing concentration trends noted for VOCs and PCBs in groundwater at the Site, GZA is proposing to reduce the sampling frequency from semi-annual to annual. As demonstrated in the Figures attached to the Five Year Review, higher concentrations are typically detected in the fall sampling round. As such, we are proposing to sample groundwater on an annual basis each fall. We are not currently recommending modifying sampling locations.
- In accordance with the recommendation in the Five Year Review, GZA will perform an annual review of Town of Norwood well-installation permit applications to assess whether wells have been installed within the past year within a 500-foot radius of the Site.

As such and per the additional requirements of the EMP and O&MP, the following monitoring activities are planned for 2015:

### Environmental Monitoring

- Groundwater sample collection and analysis (fall 2015)

### Operation and Maintenance

- Inspections of Cap, Cover and drainage system (spring and fall 2015)
- Maintenance (spring and fall 2015, if necessary)
- Review Town of Norwood well permit applications (fall 2015)



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Reporting

- Transmittal of monitoring data to EPA/DEP (fall 2015)



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## TABLES

**TABLE 1**  
**GZA 2013 GROUNDWATER ANALYTICAL RESULTS**  
**2014 ANNUAL MONITORING REPORT**  
**Norwood PCB Superfund Site**  
**Norwood, Massachusetts**

File No. 18605.00  
4/28/2015

Contaminants of Potential Concern	June 2014 Sampling event							November 2014 Sampling event							Site-Specific RBAL <sub>Mixing</sub> (chemical specific)
	MW-3A-R	ME-10	ME-17(B4)	MW-1A	ME-17(B4) (Duplicate)	MW-EW-11	B-28	MW-3A-R	ME-10	ME-17(B4)	MW-1A	MW-EW-11	B-28	MW-1A (Duplicate)	
<b>Volatile Organic Compounds (VOCs)</b>															
1,2,4-Trichlorobenzene	ND	ND	ND	208	ND	2.8	ND	ND	ND	ND	43	1.8	ND	42.9	34,000
1,4-Dichlorobenzene	ND	ND	ND	45.2	ND	ND	ND	ND	1.9	ND	120	ND	ND	124	4,600
Total 1,2-Dichloroethenes	ND	1.4	ND	78.9	ND	45.4	ND	ND	ND	ND	6.1	55.8	ND	5.9	3,660,000
Tetrachloroethene	ND	ND	ND	ND	ND	11.3	ND	ND	ND	ND	ND	6.8	ND	ND	37,000
Trichloroethene	ND	ND	ND	87.8	1.1	189	ND	ND	ND	ND	21.3	132	ND	21.9	108,000
Vinyl Chloride	ND	ND	ND	22.8	ND	ND	ND	ND	ND	ND	16.3	ND	ND	16.8	310,000
<b>Polychlorinated Biphenyls (PCBs)</b>															
Total PCBs	ND	1.08	0.7	1.38	1.76	ND	0.27	ND	0.35	0.33	0.82	ND	0.16	3.43	4.3

**NOTES:**

1. All groundwater concentrations are in ug/l (ppb). See the laboratory reports for detection limits.
2. Concentrations in bold indicate exceedance of RBAL.
3. ND indicates concentrations below laboratory detection limits.
4. Site Specific RBAL Values from Table 4-2 of Final Technical Memo Development of Risk-Based Action Levels for the Protection of Ecological Receptors for Contaminants of Potential Concern in Groundwater at the Norwood PCB Superfund Site as Prepared by Foster Wheeler Environmental Corporation, March 2003.

**TABLE 2**  
**SITEWIDE MAXIMUM OBSERVED GROUNDWATER ANALYTICAL RESULTS**  
**2014 ANNUAL MONITORING REPORT**  
**Norwood PCB Superfund Site**  
**Norwood, Massachusetts**

Contaminants of Potential Concern	Site-Specific RBAL <sub>existing</sub> (chemical specific)	Historical Groundwater Data					2005 Groundwater Data		2006 Groundwater Data		2007 Groundwater Data		2008 Groundwater Data		2009 Groundwater Data		2010 Groundwater Data		2011 Groundwater Data		2012 Groundwater Data		2013 Groundwater Data		2014 Groundwater Data		Contaminants of Potential Concern					
		October 2001		January 2002		April 2002		August 2002	May 2005	June 2005	November 2005	May 1, 2006	November 17, 2006	June 25, 2007	November/December 2007	April 10, 2008	November 13, 2008	May 28, 2009	November 9 & December 4, 2009	May 11, 2010	November 12, 2010	May 13, 2011	November 11, 2011	May 24, 2012	November 12, 2012	May 17, 2013	November 26, 2013	June 30, 2014	November 21, 2014			
		(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)			
<b>Volatile Organic Compounds (VOCs)</b>																																
1,2,4-Trichlorobenzene		34,000	930	1,200	1,200	1,200	500			1,500	490	670	850	1,313	69	9	980	780	64	255	429	84	370	521	33	79.4	83.1	208.0	43.0	1,2,4-Trichlorobenzene		
1,2,3-Trichlorobenzene			ND	ND	ND	ND	ND			ND	ND	ND	ND	373	17	2.7	230	180.0	12	78.0	132	36.0	66	146.0	7	20.1	12.2	62.0	8.0	1,2,3-Trichlorobenzene		
1,2-Dichlorobenzene			ND	ND	ND	ND	ND			ND	ND	ND	ND	31	ND	5.3	19	17.0	3.3	17.0	13.1	2.8	11.0	8.0	6.7	4.3	5.0	6.7	4.3	1,2-Dichlorobenzene		
1,3-Dichlorobenzene			ND	ND	ND	ND	ND			ND	ND	ND	ND	54	20	27	89	86	35	150	42	10	230	46	25	42.2	66.5	68.0	124.0	1,3-Dichlorobenzene		
1,4-Dichlorobenzene		4,600	42	25	27	51	100	25		96	78	36	74	22	39	72	22	101	47	12	210	38	28	43.8	72.4	45.2	124.0	1,4-Dichlorobenzene				
Total 1,2-Dichloroethenes		3,660,000	1,800	2,000	2,600	2,600	228	420		369	448	468	514	518	460.4	103.6	56.0	73	256.1	131	35.0	64	75.0	30	36.7	47.6	80.6	55.8	Total 1,2-Dichloroethenes			
1,1-Dichloroethene			ND	ND	ND	ND	ND			ND	ND	ND	ND	6.8	7.3	6.4	15	8.0	2.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,1-Dichloroethene			
1,1-Dichloroethane			ND	ND	ND	ND	ND			ND	ND	ND	ND	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,1-Dichloroethane		
Benzene			ND	ND	ND	ND	ND			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	Benzene		
Chlorobenzene			ND	ND	ND	ND	ND			ND	ND	ND	ND	187	260	100	130	120	130	192	23	27	550	92	158	132.0	620.0	121.0	398.0	Chlorobenzene		
Tetrachloroethene		37,000	4	5	16	<1	3	58		ND	ND	ND	ND	3.3	11	13	13	18	11	13	10	11	8	11.0	6.5	11.3	6.8	Tetrachloroethene				
Trichloroethene		108,000	1,600	1,400	4,000	1,800	2,300	2,100		1,800	1,100	1,922	250	84	970	550	210	733	657	190	150	188	104	140.0	100.0	189.0	132.0	Trichloroethene				
tert-Butyl alcohol (TBA)			ND	ND	ND	ND	ND			ND	ND	ND	ND	51	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	tert-Butyl alcohol (TBA)		
Acetone			ND	ND	ND	ND	ND			ND	ND	ND	ND	65	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	Acetone		
Bromodichloromethane			ND	ND	ND	ND	ND			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	Bromodichloromethane		
1,2,4-Trimethylbenzene			ND	ND	ND	ND	ND			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,2,4-Trimethylbenzene		
Tetrahydrofuran			ND	ND	ND	ND	ND			ND	ND	ND	ND	ND	ND	11.0	ND	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	Tetrahydrofuran		
Vinyl Chloride		310,000	130	120	76	110	57	120		99	76	75	131	91	90	61	39	10	46	1	10	46	11	1	9.4	10.7	22.8	16.8	Vinyl Chloride			
<b>Polychlorinated Biphenyls (PCBs)</b>																																
Total PCBs		4.3	4.3	13.5	21.0	17.8	26.3	30.0		16.8	8.6	13.0	34.4	61.5	39	5.6	4.3	13	3.8	2.7	0.59	1.3	8.48	2.0	2.03	0.8	1.76	3.4	Total PCBs			
Wells exceeding PCB RBALs		4.3	ME-17 (B-4), B-10	ME-17 (B-4), MW-4A	ME-17 (B-4)	ME-17 (B-4)	MW-1A	ME-17 (B-4)	ME-17 (B-4)	MW-1A, ME-17(B4)	ME-17 (B-4), B-28	MW-1A, ME-17(B4)	ME-17 (B-4), MW-2A, MW-1A	ME-17 (B-4), MW-1A, ME-17(B4)	MW-1A	NONE	MW-1A, ME-10	NONE	NONE	NONE	NONE	ME-17	NONE	NONE	NONE	NONE	NONE	NONE	NONE	Wells exceeding PCB RBALs		

**TABLE 3**  
**GZA 2014 SEDIMENT AND SURFACE WATER ANALYTICAL RESULTS**  
**POLYCHLORINATED BIPHENYLS**  
**2014 ANNUAL MONITORING REPORT**  
**Norwood PCB Superfund Site**  
**Norwood, Massachusetts**

Sampling Event	Polychlorinated Biphenyls Concentration							
	Surface Water Samples				Sediment Samples			
	SW-1	SW-2	SW-3	Duplicate	SED-1	SED-2	SED-3	Duplicate
	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
November 17, 2006	ND	ND	ND	ND (SW-3)	ND	ND	210	160 (SED-3)
November 13, 2008	ND	ND	ND	ND (SW-1)	130	ND	480	160 (SED-1)
November 12, 2010	ND	ND	ND	ND (SW-2)	120	ND	ND	ND (SED-2)
November 12, 2012	ND	ND	ND	ND (SW-3)	179	ND	193	299 (SED-3)
November 21, 2014	ND	ND	ND	ND (SW-1)	ND	ND	1,510	ND (SED-1)

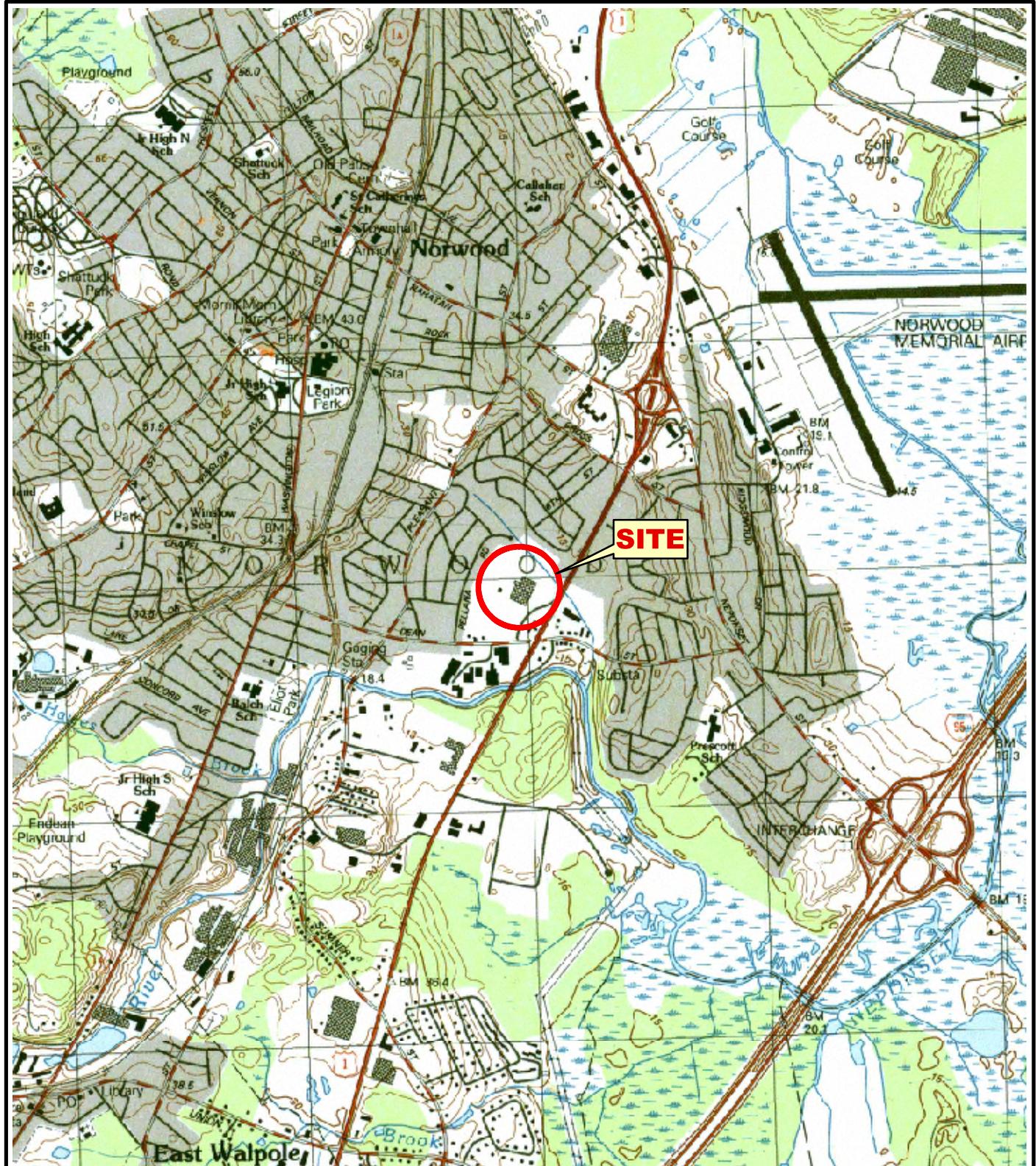
**NOTES:**

- 1) ND indicates concentrations below laboratory detection limits. See laboratory reports for detection limits.

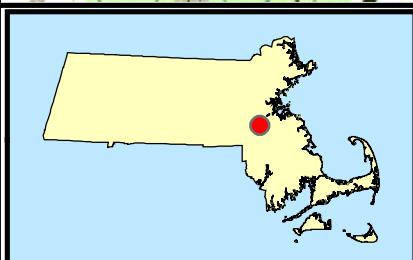


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## FIGURES



I:\18605\18605-00.STP\Figures\18605-00\_SiteLocus\_F01.mxd



SOURCE : SCANNED USGS TOPOGRAPHIC QUADRANGLES  
SCANNED BY THE MASSACHUSETTS EXECUTIVE OFFICE OF  
ENVIRONMENTAL AFFAIRS, MASSGIS. DISTRIBUTED JUNE, 2001.



0 1,000 2,000 4,000 6,000  
Feet



PROJ. MGR.: RBP  
DESIGNED BY: DR  
REVIEWED BY: AJR  
OPERATOR: EMD

DATE: 12-14-2005

## LOCUS PLAN

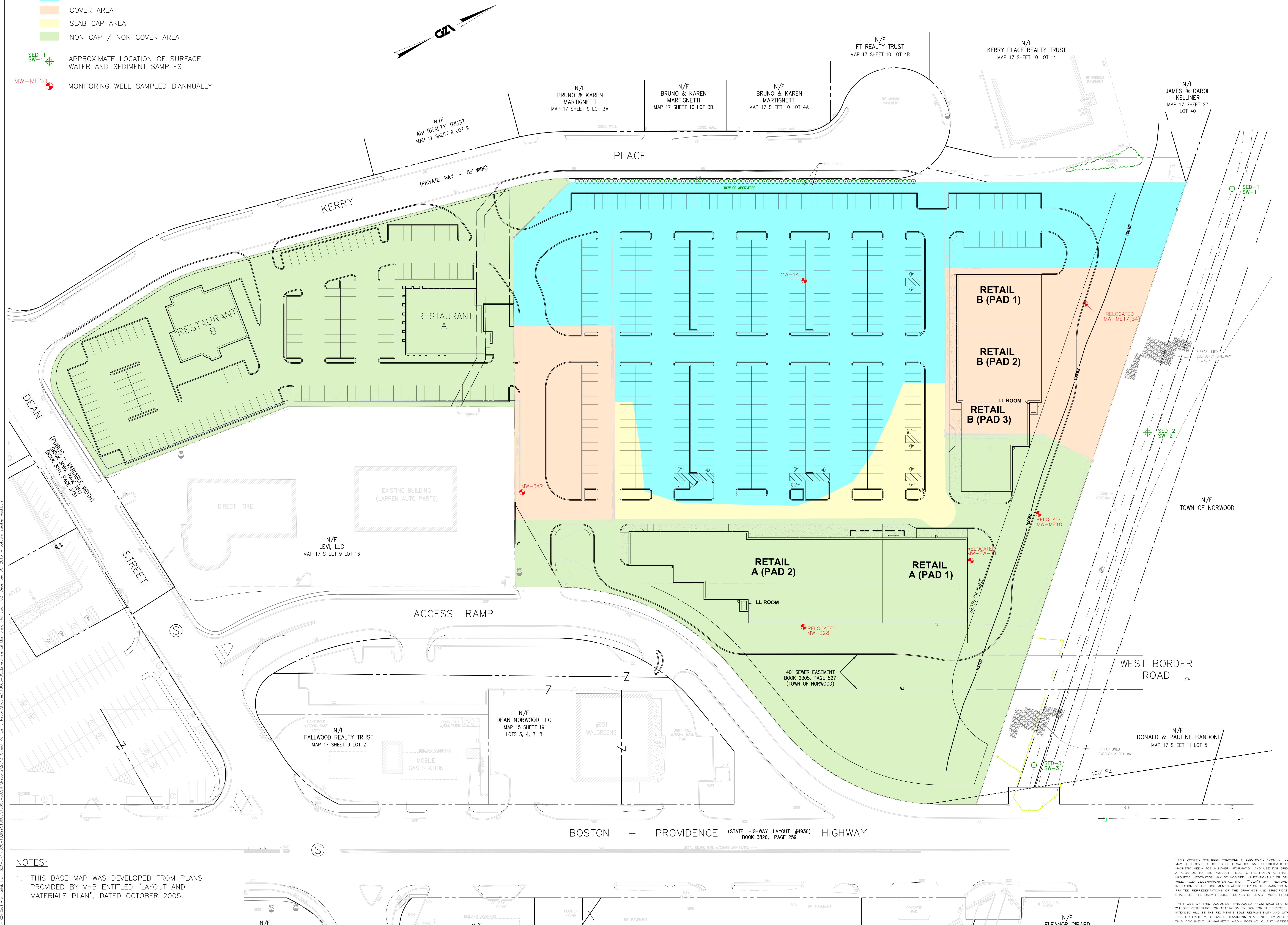
NORWOOD PCB SUPERFUND SITE  
NORWOOD, MASSACHUSETTS

JOB NO.  
01.0018605.00

FIGURE NO.  
**1**

## LEGEND

- CAP AREA
- COVER AREA
- SLAB CAP AREA
- NON CAP / NON COVER AREA
- APPROXIMATE LOCATION OF SURFACE WATER AND SEDIMENT SAMPLES
- MW-ME10 MONITORING WELL SAMPLED BIANNUALLY



		PROJ. MGR:	MMS/RBP	SCALE: 1" = 40 FEET
		DESIGNED BY:	MMS	0 20' 40'
		REV'D BY:	AJR	80'
		OPERATOR:	GAS/OCC/EMD	
		CHECKER:	GZA Geoenvironmental, Inc. Engineers and Scientists (781) 274-2100 (800) 225-2100	DATE: 12-30-2013
<b>NORWOOD PCB SUPERFUND SITE 2013 ANNUAL REPORT NORWOOD, MASSACHUSETTS</b>		REV. NO.	DESCRIPTION	BY DATE
		1	POST REDEVELOPMENT	GZA 03-11-2009

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## **APPENDIX A**

### **OPERATION AND MAINTENANCE CHECKLIST**

**OPERATION AND MAINTENANCE CHECKLIST**  
**2014 Annual Report**  
**Norwood PCB Superfund Site**  
**Providence Highway**  
**Norwood, Massachusetts**

	<b>Spring</b>	<b>Fall</b>
<b>Date EPA/ owner notified</b> (at least 7 days prior to field activities)	YES	YES
<b>Date(s) of field activities</b>	6/30/2014	11/21/2014
<b>Name(s) of field personnel</b>	Bill Davis	Bill Davis
<b>Equipment</b>		
Asphalt crack sealant	NO	NO
Flat steel ruler	YES	YES
Laser level and rod	NO	NO
Surveyor's tape	YES	YES
Non-selective herbicide	NO	NO
Camera	YES	YES
Site Plan	YES	YES
PPE and Safety equipment	YES	YES
<b>Cap observations</b>		
Cracking Note on plan cracks longer than 12 inches and wider than ¼ inch	GZA observed several cracks and potholes within the asphalt in the Cap area in the vicinity of motoring well MW-1A	Cracks and potholes previously observed were repaired by the property owner.
Sand/ debris	Some sand in the parking area	Some sand/trash in the parking area
Differential settlement	None observed	None observed
Appearance	Good	Good
Other	N/A	Asphalt patching completed by property owner
<b>Cap repairs performed</b> Note locations on plan	No repairs performed at this time	Property owner repaired cracks and potholes previously observed within Cap area.

<b>Cover observations</b>		
Weed growth Note on Plan	None observed	None Observed
Sand/ debris	Some sand observed	Some sand observed
Other	N/A	N/A
<b>Cover maintenance</b>		
Herbicide application Quantity and type	N/A	N/A
<b>Structure observations</b>		
Monitoring wells		
Settlement	None observed	None observed
Drainage structures		
Settlement	None observed	None observed
Debris buildup	None observed	None observed
<b>Structure maintenance</b>		
Debris removal (quantity)	No debris removed	No debris removed
<b>Detention basin observations</b>		
Amount of growth	Well maintained	Well maintained
Condition of rip-rap	Good, some areas with fallen stone	Good, some areas with fallen stone
Degree of debris buildup		
<b>Detention basin maintenance</b>	Good condition	Good condition
<b>Other observations</b>	N/A	Retail B Building is being prepared to be occupied by a business
<b>Lead field staff signature</b>	<i>Dill Davis</i>	



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## **APPENDIX B**

### **PHOTOGRAPHS**

**June 30, 2014**

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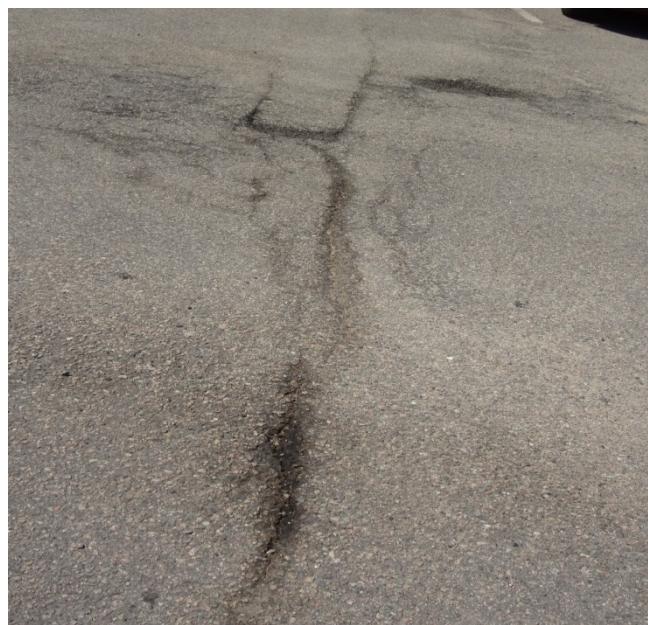
**June 30, 2014**

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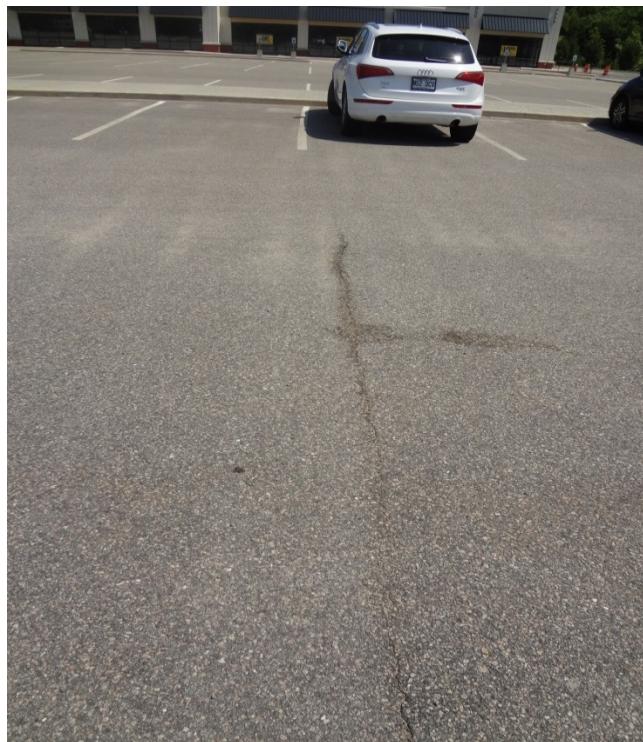
**June 30, 2014**

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**June 30, 2014**

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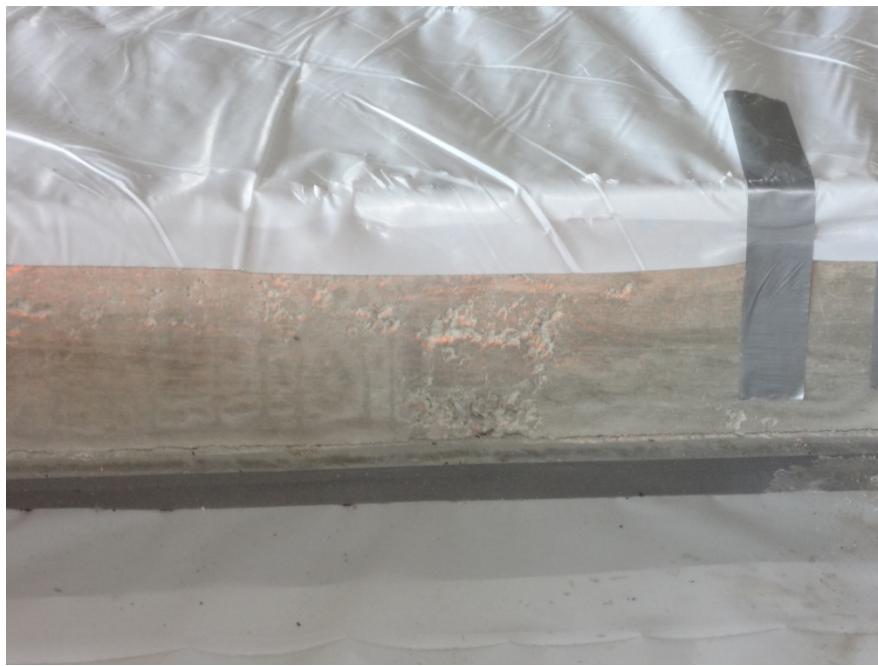
**June 30, 2014**

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**June 30, 2014**

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**November 21, 2014**

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**November 21, 2014**

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**November 21, 2014**

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**November 21, 2014**

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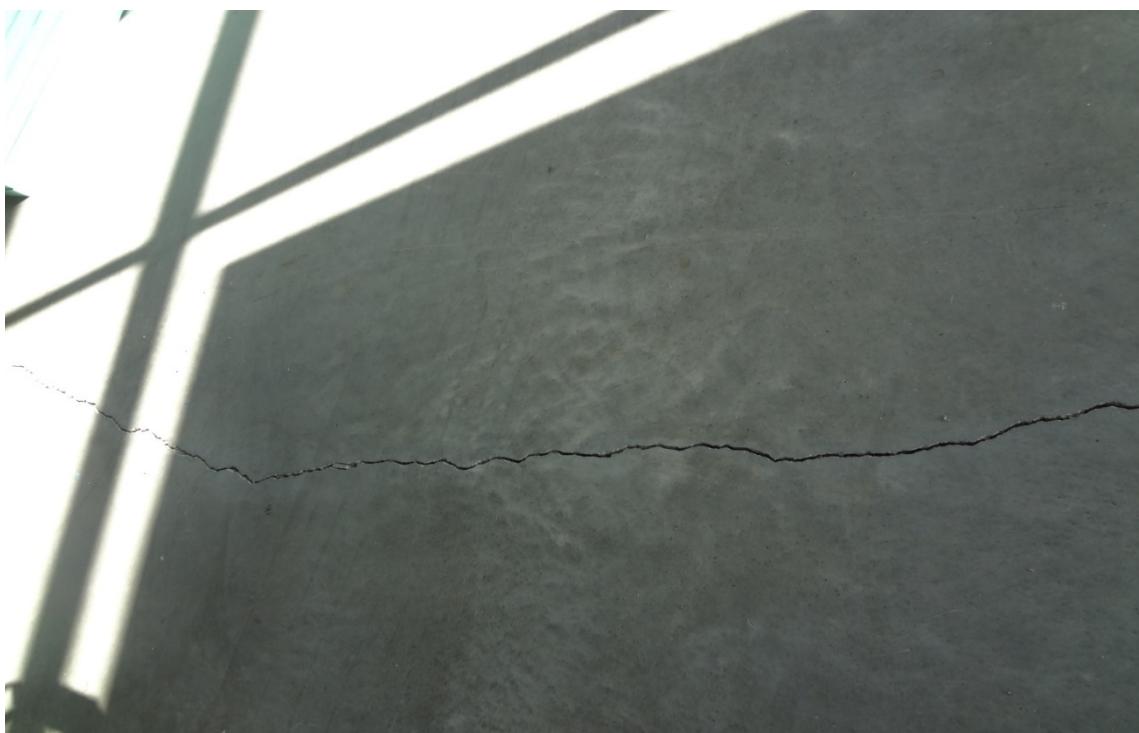
**November 21, 2014**

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**November 21, 2014**

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**November 21, 2014**

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## APPENDIX C

### ANALYTICAL RESULTS



**CERTIFICATE OF ANALYSIS**

Bill Davis  
GZA GeoEnvironmental, Inc.  
249 Vanderbilt Avenue  
Norwood, MA 02062

**RE: Grant Gear (01.0018605.00)**  
**ESS Laboratory Work Order Number: 1406681**

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard  
Laboratory Director

**REVIEWED**

**By ESS Laboratory at 3:14 pm, Jul 08, 2014**

**Analytical Summary**

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1406681

**SAMPLE RECEIPT**

The following samples were received on June 30, 2014 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has performed and reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

For EPH soil samples, the aromatic range results have been corrected for identified cartridge contaminant in accordance with the CAM protocol.

<b>Lab Number</b>	<b>Sample Name</b>	<b>Matrix</b>	<b>Analysis</b>
1406681-01	MW-1A	Ground Water	8082A, 8260B
1406681-02	ME-17 B4	Ground Water	8082A, 8260B
1406681-03	ME-10	Ground Water	8082A, 8260B
1406681-04	MW-EW-11	Ground Water	8082A, 8260B
1406681-05	B-28	Ground Water	8082A, 8260B
1406681-06	MW-3AR	Ground Water	8082A, 8260B
1406681-07	Duplicate	Ground Water	8082A, 8260B
1406681-08	Trip Blank	Aqueous	8260B



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1406681

**PROJECT NARRATIVE**

**8260B Volatile Organic Compounds**

CG40136-BS1

Blank Spike recovery is above upper control limit (B+).

Acetone (142% @ 70-130%)

CG40136-BSD1

Blank Spike recovery is above upper control limit (B+).

Acetone (134% @ 70-130%)

CXG0029-CCV1

Continuing Calibration recovery is below lower control limit (C-).

Bromomethane (65% @ 70-130%)

No other observations noted.

End of Project Narrative.

**DATA USABILITY LINKS**

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1406681

**CURRENT SW-846 METHODOLOGY VERSIONS**

**Analytical Methods**

1010A - Flashpoint  
6010C - ICP  
6020A - ICP MS  
7010 - Graphite Furnace  
7196A - Hexavalent Chromium  
7470A - Aqueous Mercury  
7471B - Solid Mercury  
8011 - EDB/DBCP/TCP  
8015D - GRO/DRO  
8081B - Pesticides  
8082A - PCB  
8100M - TPH  
8151A - Herbicides  
8260B - VOA  
8270D - SVOA  
8270D SIM - SVOA Low Level  
9014 - Cyanide  
9038 - Sulfate  
9040C - Aqueous pH  
9045D - Solid pH (Corrosivity)  
9050A - Specific Conductance  
9056A - Anions (IC)  
9060A - TOC  
9095B - Paint Filter  
MADEP 04-1.1 - EPH / VPH

**Prep Methods**

3005A - Aqueous ICP Digestion  
3020A - Aqueous Graphite Furnace / ICP MS Digestion  
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion  
3060A - Solid Hexavalent Chromium Digestion  
3510C - Separatory Funnel Extraction  
3520C - Liquid / Liquid Extraction  
3540C - Manual Soxhlet Extraction  
3541 - Automated Soxhlet Extraction  
3546 - Microwave Extraction  
3580A - Waste Dilution  
5030B - Aqueous Purge and Trap  
5030C - Aqueous Purge and Trap  
5035 - Solid Purge and Trap



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1406681

**MassDEP Analytical Protocol Certification Form**

MADEP RTN: \_\_\_\_\_

This form provides certification for the following data set: **1406681-01 through 1406681-08**

Matrices:  Ground Water/Surface Water       Soil/Sediment       Drinking Water       Air       Other: \_\_\_\_\_

**CAM Protocol (check all that apply below):**

- |                              |                               |                             |                                    |  |                             |
|------------------------------|-------------------------------|-----------------------------|------------------------------------|--|-----------------------------|
| (X) 8260 VOC<br>CAM II A     | ( ) 7470/7471 Hg<br>CAM III B | ( ) MassDEP VPH<br>CAM IV A | ( ) 8081 Pesticides<br>CAM V B     | ( ) 7196 Hex Cr<br>CAM VI B            | ( ) MassDEP APH<br>CAM IX A |
| ( ) 8270 SVOC<br>CAM II B    | ( ) 7010 Metals<br>CAM III C  | ( ) MassDEP EPH<br>CAM IV B | ( ) 8151 Herbicides<br>CAM V C     | ( ) 8330 Explosives<br>CAM VIII A      | ( ) TO-15 VOC<br>CAM IX B   |
| ( ) 6010 Metals<br>CAM III A | ( ) 6020 Metals<br>CAM III D  | (X) 8082 PCB<br>CAM V A     | ( ) 6860 Perchlorate<br>CAM VIII B | ( ) 9014 Total Cyanide/PAC<br>CAM VI A |                             |

***Affirmative responses to questions A through F are required for Presumptive Certainty'status***

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes (X) No ( )
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes (X) No ( )
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes (X) No ( )
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes (X) No ( )
- E a. VPH, EPH, APH and TO-15 only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes ( ) No ( )
- b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes ( ) No ( )
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes (X) No ( )

***Responses to Questions G, H and I below are required for Presumptive Certainty'status***

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)? Yes (X) No ( )\*
- Data User Note: Data that achieve Presumptive Certainty'status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.***
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes ( ) No (X)\*
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes (X) No ( )\*

\*All negative responses must be addressed in an attached laboratory narrative.

***I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.***

Signature: \_\_\_\_\_

Printed Name: Laurel Stoddard

Date: July 08, 2014

Position: Laboratory Director



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: MW-1A

Date Sampled: 06/30/14 10:00

Percent Solids: N/A

Initial Volume: 1070

Final Volume: 1

Extraction Method: 3510C

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-01

Sample Matrix: Ground Water

Units: ug/L

Analyst: TAJ

Prepared: 7/1/14 9:25

Cleanup Method: 3665A

**8082A Polychlorinated Biphenyls (PCB)**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Aroclor 1016	ND (0.09)		8082A		1	07/03/14 3:08		CG40320
Aroclor 1221	ND (0.09)		8082A		1	07/03/14 3:08		CG40320
Aroclor 1232	ND (0.09)		8082A		1	07/03/14 3:08		CG40320
Aroclor 1242	ND (0.09)		8082A		1	07/03/14 3:08		CG40320
<b>Aroclor 1248</b>	<b>0.66 (0.09)</b>		8082A		1	07/03/14 3:08		CG40320
<b>Aroclor 1254</b>	<b>0.72 (0.09)</b>		8082A		1	07/03/14 3:08		CG40320
Aroclor 1260	ND (0.09)		8082A		1	07/03/14 3:08		CG40320
Aroclor 1262	ND (0.09)		8082A		1	07/03/14 3:08		CG40320
Aroclor 1268	ND (0.09)		8082A		1	07/03/14 3:08		CG40320

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	80 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	85 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	86 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	77 %		30-150



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: MW-1A

Date Sampled: 06/30/14 10:00

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-01

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
1,1,1-Trichloroethane	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	07/01/14 17:43	CXG0009	CG40136
1,1,2-Trichloroethane	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
1,1-Dichloroethane	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
1,1-Dichloroethene	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
1,1-Dichloropropene	ND (2.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
<b>1,2,3-Trichlorobenzene</b>	<b>62.0 (1.0)</b>		8260B		1	07/01/14 17:43	CXG0009	CG40136
1,2,3-Trichloropropane	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
<b>1,2,4-Trichlorobenzene</b>	<b>208 (10.0)</b>		8260B		10	07/02/14 12:39	CXG0009	CG40136
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
1,2-Dibromoethane	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
<b>1,2-Dichlorobenzene</b>	<b>6.7 (1.0)</b>		8260B		1	07/01/14 17:43	CXG0009	CG40136
1,2-Dichloroethane	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
1,2-Dichloropropane	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
<b>1,3-Dichlorobenzene</b>	<b>68.0 (1.0)</b>		8260B		1	07/01/14 17:43	CXG0009	CG40136
1,3-Dichloropropane	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
<b>1,4-Dichlorobenzene</b>	<b>45.2 (1.0)</b>		8260B		1	07/01/14 17:43	CXG0009	CG40136
1,4-Dioxane - Screen	ND (500)		8260B		1	07/01/14 17:43	CXG0009	CG40136
2,2-Dichloropropane	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
2-Butanone	ND (10.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
2-Chlorotoluene	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
2-Hexanone	ND (10.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
4-Chlorotoluene	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
4-Isopropyltoluene	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
<b>Acetone</b>	<b>12.4 (10.0)</b>		8260B		1	07/01/14 17:43	CXG0009	CG40136
Benzene	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Bromobenzene	ND (2.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Bromochloromethane	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: MW-1A

Date Sampled: 06/30/14 10:00

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-01

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Bromodichloromethane	ND (0.6)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Bromoform	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Bromomethane	ND (2.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Carbon Disulfide	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Carbon Tetrachloride	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
<b>Chlorobenzene</b>	<b>121 (10.0)</b>		8260B		10	07/02/14 12:39	CXG0009	CG40136
Chloroethane	ND (2.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Chloroform	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Chloromethane	ND (2.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
<b>cis-1,2-Dichloroethene</b>	<b>78.9 (1.0)</b>		8260B		1	07/01/14 17:43	CXG0009	CG40136
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Dibromochloromethane	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Dibromomethane	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Dichlorodifluoromethane	ND (2.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Diethyl Ether	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Di-isopropyl ether	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Ethylbenzene	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Hexachlorobutadiene	ND (0.6)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Hexachloroethane	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Isopropylbenzene	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Methylene Chloride	ND (2.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Naphthalene	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
n-Butylbenzene	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
n-Propylbenzene	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
sec-Butylbenzene	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Styrene	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
tert-Butylbenzene	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Tetrachloroethene	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Tetrahydrofuran	ND (5.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: MW-1A

Date Sampled: 06/30/14 10:00

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-01

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
<b>trans-1,2-Dichloroethene</b>	<b>1.7 (1.0)</b>		8260B		1	07/01/14 17:43	CXG0009	CG40136
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	07/01/14 17:43	CXG0009	CG40136
<b>Trichloroethene</b>	<b>87.8 (1.0)</b>		8260B		1	07/01/14 17:43	CXG0009	CG40136
Trichlorofluoromethane	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
<b>Vinyl Chloride</b>	<b>22.8 (1.0)</b>		8260B		1	07/01/14 17:43	CXG0009	CG40136
Xylene O	ND (1.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Xylene P,M	ND (2.0)		8260B		1	07/01/14 17:43	CXG0009	CG40136
Xylenes (Total)	ND (2.0)		8260B		1	07/01/14 17:43		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	95 %		70-130
Surrogate: 4-Bromofluorobenzene	98 %		70-130
Surrogate: Dibromofluoromethane	98 %		70-130
Surrogate: Toluene-d8	96 %		70-130



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: ME-17 B4

Date Sampled: 06/30/14 10:45

Percent Solids: N/A

Initial Volume: 950

Final Volume: 1

Extraction Method: 3510C

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-02

Sample Matrix: Ground Water

Units: ug/L

Analyst: TJ

Prepared: 7/1/14 9:25

Cleanup Method: 3665A

**8082A Polychlorinated Biphenyls (PCB)**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Aroclor 1016	ND (0.11)		8082A		1	07/02/14 0:38		CF43009
Aroclor 1221	ND (0.11)		8082A		1	07/02/14 0:38		CF43009
Aroclor 1232	ND (0.11)		8082A		1	07/02/14 0:38		CF43009
Aroclor 1242	ND (0.11)		8082A		1	07/02/14 0:38		CF43009
<b>Aroclor 1248</b>	<b>0.41 (0.11)</b>		8082A		1	07/02/14 0:38		CF43009
<b>Aroclor 1254</b>	<b>0.29 (0.11)</b>		8082A		1	07/02/14 0:38		CF43009
Aroclor 1260	ND (0.11)		8082A		1	07/02/14 0:38		CF43009
Aroclor 1262	ND (0.11)		8082A		1	07/02/14 0:38		CF43009
Aroclor 1268	ND (0.11)		8082A		1	07/02/14 0:38		CF43009

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	97 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	113 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	84 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	84 %		30-150



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: ME-17 B4

Date Sampled: 06/30/14 10:45

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-02

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
1,1,1-Trichloroethane	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	07/02/14 11:46	CXG0029	CG40227
1,1,2-Trichloroethane	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
1,1-Dichloroethane	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
1,1-Dichloroethene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
1,1-Dichloropropene	ND (2.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
1,2,3-Trichloropropane	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
1,2-Dibromoethane	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
1,2-Dichlorobenzene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
1,2-Dichloroethane	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
1,2-Dichloropropane	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
1,3-Dichlorobenzene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
1,3-Dichloropropane	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
1,4-Dichlorobenzene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
1,4-Dioxane - Screen	ND (500)		8260B		1	07/02/14 11:46	CXG0029	CG40227
2,2-Dichloropropane	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
2-Butanone	ND (10.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
2-Chlorotoluene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
2-Hexanone	ND (10.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
4-Chlorotoluene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
4-Isopropyltoluene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Acetone	ND (10.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Benzene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Bromobenzene	ND (2.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Bromochloromethane	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: ME-17 B4

Date Sampled: 06/30/14 10:45

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-02

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Bromodichloromethane	ND (0.6)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Bromoform	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Bromomethane	ND (2.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Carbon Disulfide	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Carbon Tetrachloride	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Chlorobenzene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Chloroethane	ND (2.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Chloroform	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Chloromethane	ND (2.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Dibromochloromethane	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Dibromomethane	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Dichlorodifluoromethane	ND (2.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Diethyl Ether	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Di-isopropyl ether	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Ethylbenzene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Hexachlorobutadiene	ND (0.6)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Hexachloroethane	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Isopropylbenzene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Methylene Chloride	ND (2.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Naphthalene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
n-Butylbenzene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
n-Propylbenzene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
sec-Butylbenzene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Styrene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
tert-Butylbenzene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Tetrachloroethene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Tetrahydrofuran	ND (5.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: ME-17 B4

Date Sampled: 06/30/14 10:45

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-02

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Trichloroethene	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Trichlorofluoromethane	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Vinyl Chloride	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Xylene O	ND (1.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Xylene P,M	ND (2.0)		8260B		1	07/02/14 11:46	CXG0029	CG40227
Xylenes (Total)	ND (2.0)		8260B		1	07/02/14 11:46		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	96 %		70-130
Surrogate: 4-Bromofluorobenzene	91 %		70-130
Surrogate: Dibromofluoromethane	105 %		70-130
Surrogate: Toluene-d8	94 %		70-130



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: ME-10

Date Sampled: 06/30/14 14:30

Percent Solids: N/A

Initial Volume: 950

Final Volume: 1

Extraction Method: 3510C

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-03

Sample Matrix: Ground Water

Units: ug/L

Analyst: TJ

Prepared: 7/1/14 9:25

Cleanup Method: 3665A

**8082A Polychlorinated Biphenyls (PCB)**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Aroclor 1016	ND (0.11)		8082A		1	07/02/14 0:57		CF43009
Aroclor 1221	ND (0.11)		8082A		1	07/02/14 0:57		CF43009
Aroclor 1232	ND (0.11)		8082A		1	07/02/14 0:57		CF43009
Aroclor 1242	ND (0.11)		8082A		1	07/02/14 0:57		CF43009
<b>Aroclor 1248</b>	<b>0.39 (0.11)</b>		8082A		1	07/02/14 0:57		CF43009
<b>Aroclor 1254</b>	<b>0.69 (0.11)</b>		8082A		1	07/02/14 0:57		CF43009
Aroclor 1260	ND (0.11)		8082A		1	07/02/14 0:57		CF43009
Aroclor 1262	ND (0.11)		8082A		1	07/02/14 0:57		CF43009
Aroclor 1268	ND (0.11)		8082A		1	07/02/14 0:57		CF43009

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	82 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	85 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	99 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	107 %		30-150



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: ME-10

Date Sampled: 06/30/14 14:30

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-03

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
1,1,1-Trichloroethane	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	07/02/14 12:13	CXG0029	CG40227
1,1,2-Trichloroethane	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
1,1-Dichloroethane	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
1,1-Dichloroethene	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
1,1-Dichloropropene	ND (2.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
1,2,3-Trichloropropane	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
1,2-Dibromoethane	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
1,2-Dichlorobenzene	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
1,2-Dichloroethane	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
1,2-Dichloropropane	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
1,3-Dichlorobenzene	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
1,3-Dichloropropane	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
1,4-Dichlorobenzene	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
1,4-Dioxane - Screen	ND (500)		8260B		1	07/02/14 12:13	CXG0029	CG40227
2,2-Dichloropropane	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
2-Butanone	ND (10.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
2-Chlorotoluene	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
2-Hexanone	ND (10.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
4-Chlorotoluene	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
4-Isopropyltoluene	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Acetone	ND (10.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Benzene	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Bromobenzene	ND (2.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Bromochloromethane	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: ME-10

Date Sampled: 06/30/14 14:30

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-03

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Bromodichloromethane	ND (0.6)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Bromoform	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Bromomethane	ND (2.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Carbon Disulfide	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Carbon Tetrachloride	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Chlorobenzene	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Chloroethane	ND (2.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Chloroform	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Chloromethane	ND (2.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
<b>cis-1,2-Dichloroethene</b>	<b>1.4 (1.0)</b>		8260B		1	07/02/14 12:13	CXG0029	CG40227
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Dibromochloromethane	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Dibromomethane	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Dichlorodifluoromethane	ND (2.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Diethyl Ether	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Di-isopropyl ether	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Ethylbenzene	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Hexachlorobutadiene	ND (0.6)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Hexachloroethane	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Isopropylbenzene	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Methylene Chloride	ND (2.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Naphthalene	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
n-Butylbenzene	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
n-Propylbenzene	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
sec-Butylbenzene	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Styrene	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
tert-Butylbenzene	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Tetrachloroethene	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Tetrahydrofuran	ND (5.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: ME-10

Date Sampled: 06/30/14 14:30

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-03

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Trichloroethene	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Trichlorofluoromethane	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Vinyl Chloride	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Xylene O	ND (1.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Xylene P,M	ND (2.0)		8260B		1	07/02/14 12:13	CXG0029	CG40227
Xylenes (Total)	ND (2.0)		8260B		1	07/02/14 12:13		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	94 %		70-130
Surrogate: 4-Bromofluorobenzene	90 %		70-130
Surrogate: Dibromofluoromethane	102 %		70-130
Surrogate: Toluene-d8	94 %		70-130



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: MW-EW-11

Date Sampled: 06/30/14 11:58

Percent Solids: N/A

Initial Volume: 1070

Final Volume: 1

Extraction Method: 3510C

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-04

Sample Matrix: Ground Water

Units: ug/L

Analyst: TJ

Prepared: 7/1/14 9:25

Cleanup Method: 3665A

**8082A Polychlorinated Biphenyls (PCB)**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Aroclor 1016	ND (0.09)		8082A		1	07/02/14 3:09		CF43009
Aroclor 1221	ND (0.09)		8082A		1	07/02/14 3:09		CF43009
Aroclor 1232	ND (0.09)		8082A		1	07/02/14 3:09		CF43009
Aroclor 1242	ND (0.09)		8082A		1	07/02/14 3:09		CF43009
Aroclor 1248	ND (0.09)		8082A		1	07/02/14 3:09		CF43009
Aroclor 1254	ND (0.09)		8082A		1	07/02/14 3:09		CF43009
Aroclor 1260	ND (0.09)		8082A		1	07/02/14 3:09		CF43009
Aroclor 1262	ND (0.09)		8082A		1	07/02/14 3:09		CF43009
Aroclor 1268	ND (0.09)		8082A		1	07/02/14 3:09		CF43009

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	87 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	102 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	64 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	69 %		30-150



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: MW-EW-11

Date Sampled: 06/30/14 11:58

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-04

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
1,1,1-Trichloroethane	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	07/01/14 19:03	CXG0009	CG40136
1,1,2-Trichloroethane	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
1,1-Dichloroethane	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
1,1-Dichloroethene	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
1,1-Dichloropropene	ND (2.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
<b>1,2,3-Trichlorobenzene</b>	<b>1.9 (1.0)</b>		8260B		1	07/01/14 19:03	CXG0009	CG40136
1,2,3-Trichloropropane	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
<b>1,2,4-Trichlorobenzene</b>	<b>2.8 (1.0)</b>		8260B		1	07/01/14 19:03	CXG0009	CG40136
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
1,2-Dibromoethane	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
1,2-Dichlorobenzene	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
1,2-Dichloroethane	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
1,2-Dichloropropane	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
1,3-Dichlorobenzene	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
1,3-Dichloropropane	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
1,4-Dichlorobenzene	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
1,4-Dioxane - Screen	ND (500)		8260B		1	07/01/14 19:03	CXG0009	CG40136
2,2-Dichloropropane	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
2-Butanone	ND (10.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
2-Chlorotoluene	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
2-Hexanone	ND (10.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
4-Chlorotoluene	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
4-Isopropyltoluene	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Acetone	ND (10.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Benzene	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Bromobenzene	ND (2.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Bromochloromethane	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: MW-EW-11

Date Sampled: 06/30/14 11:58

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-04

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Bromodichloromethane	ND (0.6)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Bromoform	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Bromomethane	ND (2.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Carbon Disulfide	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Carbon Tetrachloride	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Chlorobenzene	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Chloroethane	ND (2.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Chloroform	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Chloromethane	ND (2.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
<b>cis-1,2-Dichloroethene</b>	<b>45.4 (1.0)</b>		8260B		1	07/01/14 19:03	CXG0009	CG40136
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Dibromochloromethane	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Dibromomethane	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Dichlorodifluoromethane	ND (2.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Diethyl Ether	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Di-isopropyl ether	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Ethylbenzene	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Hexachlorobutadiene	ND (0.6)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Hexachloroethane	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Isopropylbenzene	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Methylene Chloride	ND (2.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Naphthalene	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
n-Butylbenzene	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
n-Propylbenzene	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
sec-Butylbenzene	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Styrene	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
tert-Butylbenzene	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
<b>Tetrachloroethene</b>	<b>11.3 (1.0)</b>		8260B		1	07/01/14 19:03	CXG0009	CG40136
Tetrahydrofuran	ND (5.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: MW-EW-11

Date Sampled: 06/30/14 11:58

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-04

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	07/01/14 19:03	CXG0009	CG40136
<b>Trichloroethene</b>	<b>189 (10.0)</b>		8260B		10	07/02/14 13:06	CXG0009	CG40136
Trichlorofluoromethane	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Vinyl Chloride	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Xylene O	ND (1.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Xylene P,M	ND (2.0)		8260B		1	07/01/14 19:03	CXG0009	CG40136
Xylenes (Total)	ND (2.0)		8260B		1	07/01/14 19:03		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	96 %		70-130
Surrogate: 4-Bromofluorobenzene	92 %		70-130
Surrogate: Dibromofluoromethane	97 %		70-130
Surrogate: Toluene-d8	94 %		70-130



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: B-28

Date Sampled: 06/30/14 13:30

Percent Solids: N/A

Initial Volume: 1070

Final Volume: 1

Extraction Method: 3510C

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-05

Sample Matrix: Ground Water

Units: ug/L

Analyst: TJ

Prepared: 7/1/14 9:25

Cleanup Method: 3665A

**8082A Polychlorinated Biphenyls (PCB)**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Aroclor 1016	ND (0.09)		8082A		1	07/02/14 3:28		CF43009
Aroclor 1221	ND (0.09)		8082A		1	07/02/14 3:28		CF43009
Aroclor 1232	ND (0.09)		8082A		1	07/02/14 3:28		CF43009
Aroclor 1242	ND (0.09)		8082A		1	07/02/14 3:28		CF43009
Aroclor 1248	ND (0.09)		8082A		1	07/02/14 3:28		CF43009
<b>Aroclor 1254</b>	<b>0.27 (0.09)</b>		8082A		1	07/02/14 3:28		CF43009
Aroclor 1260	ND (0.09)		8082A		1	07/02/14 3:28		CF43009
Aroclor 1262	ND (0.09)		8082A		1	07/02/14 3:28		CF43009
Aroclor 1268	ND (0.09)		8082A		1	07/02/14 3:28		CF43009

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	104 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	121 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	97 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	105 %		30-150



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: B-28

Date Sampled: 06/30/14 13:30

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-05

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
1,1,1-Trichloroethane	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	07/01/14 19:30	CXG0009	CG40136
1,1,2-Trichloroethane	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
1,1-Dichloroethane	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
1,1-Dichloroethene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
1,1-Dichloropropene	ND (2.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
1,2,3-Trichloropropane	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
1,2-Dibromoethane	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
1,2-Dichlorobenzene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
1,2-Dichloroethane	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
1,2-Dichloropropane	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
1,3-Dichlorobenzene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
1,3-Dichloropropane	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
1,4-Dichlorobenzene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
1,4-Dioxane - Screen	ND (500)		8260B		1	07/01/14 19:30	CXG0009	CG40136
2,2-Dichloropropane	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
2-Butanone	ND (10.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
2-Chlorotoluene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
2-Hexanone	ND (10.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
4-Chlorotoluene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
4-Isopropyltoluene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Acetone	ND (10.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Benzene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Bromobenzene	ND (2.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Bromochloromethane	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: B-28

Date Sampled: 06/30/14 13:30

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-05

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Bromodichloromethane	ND (0.6)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Bromoform	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Bromomethane	ND (2.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Carbon Disulfide	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Carbon Tetrachloride	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Chlorobenzene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Chloroethane	ND (2.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Chloroform	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Chloromethane	ND (2.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Dibromochloromethane	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Dibromomethane	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Dichlorodifluoromethane	ND (2.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Diethyl Ether	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Di-isopropyl ether	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Ethylbenzene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Hexachlorobutadiene	ND (0.6)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Hexachloroethane	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Isopropylbenzene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Methylene Chloride	ND (2.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Naphthalene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
n-Butylbenzene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
n-Propylbenzene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
sec-Butylbenzene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Styrene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
tert-Butylbenzene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Tetrachloroethene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Tetrahydrofuran	ND (5.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: B-28

Date Sampled: 06/30/14 13:30

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-05

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Trichloroethene	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Trichlorofluoromethane	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Vinyl Chloride	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Xylene O	ND (1.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Xylene P,M	ND (2.0)		8260B		1	07/01/14 19:30	CXG0009	CG40136
Xylenes (Total)	ND (2.0)		8260B		1	07/01/14 19:30		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	96 %		70-130
Surrogate: 4-Bromofluorobenzene	94 %		70-130
Surrogate: Dibromofluoromethane	101 %		70-130
Surrogate: Toluene-d8	93 %		70-130



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: MW-3AR

Date Sampled: 06/30/14 00:00

Percent Solids: N/A

Initial Volume: 1070

Final Volume: 1

Extraction Method: 3510C

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-06

Sample Matrix: Ground Water

Units: ug/L

Analyst: TAJ

Prepared: 7/1/14 9:25

Cleanup Method: 3665A

**8082A Polychlorinated Biphenyls (PCB)**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Aroclor 1016	ND (0.09)		8082A		1	07/03/14 3:27		CG40320
Aroclor 1221	ND (0.09)		8082A		1	07/03/14 3:27		CG40320
Aroclor 1232	ND (0.09)		8082A		1	07/03/14 3:27		CG40320
Aroclor 1242	ND (0.09)		8082A		1	07/03/14 3:27		CG40320
Aroclor 1248	ND (0.09)		8082A		1	07/03/14 3:27		CG40320
Aroclor 1254	ND (0.09)		8082A		1	07/03/14 3:27		CG40320
Aroclor 1260	ND (0.09)		8082A		1	07/03/14 3:27		CG40320
Aroclor 1262	ND (0.09)		8082A		1	07/03/14 3:27		CG40320
Aroclor 1268	ND (0.09)		8082A		1	07/03/14 3:27		CG40320

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	56 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	64 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	67 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	71 %		30-150



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: MW-3AR

Date Sampled: 06/30/14 00:00

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-06

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
1,1,1-Trichloroethane	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	07/01/14 20:24	CXG0009	CG40136
1,1,2-Trichloroethane	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
1,1-Dichloroethane	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
1,1-Dichloroethene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
1,1-Dichloropropene	ND (2.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
1,2,3-Trichloropropane	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
1,2-Dibromoethane	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
1,2-Dichlorobenzene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
1,2-Dichloroethane	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
1,2-Dichloropropane	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
1,3-Dichlorobenzene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
1,3-Dichloropropane	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
1,4-Dichlorobenzene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
1,4-Dioxane - Screen	ND (500)		8260B		1	07/01/14 20:24	CXG0009	CG40136
2,2-Dichloropropane	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
2-Butanone	ND (10.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
2-Chlorotoluene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
2-Hexanone	ND (10.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
4-Chlorotoluene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
4-Isopropyltoluene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
<b>Acetone</b>	<b>11.4 (10.0)</b>		8260B		1	07/01/14 20:24	CXG0009	CG40136
Benzene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Bromobenzene	ND (2.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Bromochloromethane	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: MW-3AR

Date Sampled: 06/30/14 00:00

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-06

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Bromodichloromethane	ND (0.6)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Bromoform	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Bromomethane	ND (2.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Carbon Disulfide	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Carbon Tetrachloride	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Chlorobenzene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Chloroethane	ND (2.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Chloroform	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Chloromethane	ND (2.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Dibromochloromethane	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Dibromomethane	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Dichlorodifluoromethane	ND (2.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Diethyl Ether	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Di-isopropyl ether	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Ethylbenzene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Hexachlorobutadiene	ND (0.6)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Hexachloroethane	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Isopropylbenzene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Methylene Chloride	ND (2.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Naphthalene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
n-Butylbenzene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
n-Propylbenzene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
sec-Butylbenzene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Styrene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
tert-Butylbenzene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Tetrachloroethene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Tetrahydrofuran	ND (5.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: MW-3AR

Date Sampled: 06/30/14 00:00

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-06

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Trichloroethene	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Trichlorofluoromethane	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Vinyl Chloride	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Xylene O	ND (1.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Xylene P,M	ND (2.0)		8260B		1	07/01/14 20:24	CXG0009	CG40136
Xylenes (Total)	ND (2.0)		8260B		1	07/01/14 20:24		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	95 %		70-130
Surrogate: 4-Bromofluorobenzene	95 %		70-130
Surrogate: Dibromofluoromethane	101 %		70-130
Surrogate: Toluene-d8	96 %		70-130



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: Duplicate

Date Sampled: 06/30/14 11:00

Percent Solids: N/A

Initial Volume: 1070

Final Volume: 1

Extraction Method: 3510C

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-07

Sample Matrix: Ground Water

Units: ug/L

Analyst: TAJ

Prepared: 7/1/14 9:25

Cleanup Method: 3665A

**8082A Polychlorinated Biphenyls (PCB)**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Aroclor 1016	ND (0.09)		8082A		1	07/03/14 3:46		CG40320
Aroclor 1221	ND (0.09)		8082A		1	07/03/14 3:46		CG40320
Aroclor 1232	ND (0.09)		8082A		1	07/03/14 3:46		CG40320
Aroclor 1242	ND (0.09)		8082A		1	07/03/14 3:46		CG40320
<b>Aroclor 1248</b>	<b>0.72 (0.09)</b>		8082A		1	07/03/14 3:46		CG40320
<b>Aroclor 1254</b>	<b>1.04 (0.09)</b>		8082A		1	07/03/14 3:46		CG40320
Aroclor 1260	ND (0.09)		8082A		1	07/03/14 3:46		CG40320
Aroclor 1262	ND (0.09)		8082A		1	07/03/14 3:46		CG40320
Aroclor 1268	ND (0.09)		8082A		1	07/03/14 3:46		CG40320

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	58 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	65 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	56 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	49 %		30-150



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: Duplicate

Date Sampled: 06/30/14 11:00

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-07

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
1,1,1-Trichloroethane	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	07/01/14 19:57	CXG0009	CG40136
1,1,2-Trichloroethane	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
1,1-Dichloroethane	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
1,1-Dichloroethene	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
1,1-Dichloropropene	ND (2.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
1,2,3-Trichloropropane	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
1,2-Dibromoethane	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
1,2-Dichlorobenzene	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
1,2-Dichloroethane	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
1,2-Dichloropropane	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
1,3-Dichlorobenzene	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
1,3-Dichloropropane	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
1,4-Dichlorobenzene	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
1,4-Dioxane - Screen	ND (500)		8260B		1	07/01/14 19:57	CXG0009	CG40136
2,2-Dichloropropane	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
2-Butanone	ND (10.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
2-Chlorotoluene	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
2-Hexanone	ND (10.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
4-Chlorotoluene	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
4-Isopropyltoluene	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Acetone	ND (10.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Benzene	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Bromobenzene	ND (2.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Bromochloromethane	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: Duplicate

Date Sampled: 06/30/14 11:00

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-07

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Bromodichloromethane	ND (0.6)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Bromoform	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Bromomethane	ND (2.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Carbon Disulfide	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Carbon Tetrachloride	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Chlorobenzene	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Chloroethane	ND (2.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Chloroform	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Chloromethane	ND (2.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Dibromochloromethane	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Dibromomethane	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Dichlorodifluoromethane	ND (2.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Diethyl Ether	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Di-isopropyl ether	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Ethylbenzene	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Hexachlorobutadiene	ND (0.6)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Hexachloroethane	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Isopropylbenzene	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Methylene Chloride	ND (2.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Naphthalene	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
n-Butylbenzene	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
n-Propylbenzene	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
sec-Butylbenzene	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Styrene	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
tert-Butylbenzene	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Tetrachloroethene	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Tetrahydrofuran	ND (5.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: Duplicate

Date Sampled: 06/30/14 11:00

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-07

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	07/01/14 19:57	CXG0009	CG40136
<b>Trichloroethene</b>	<b>1.1 (1.0)</b>		8260B		1	07/01/14 19:57	CXG0009	CG40136
Trichlorofluoromethane	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Vinyl Chloride	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Xylene O	ND (1.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Xylene P,M	ND (2.0)		8260B		1	07/01/14 19:57	CXG0009	CG40136
Xylenes (Total)	ND (2.0)		8260B		1	07/01/14 19:57		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	95 %		70-130
Surrogate: 4-Bromofluorobenzene	90 %		70-130
Surrogate: Dibromofluoromethane	101 %		70-130
Surrogate: Toluene-d8	92 %		70-130



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: Trip Blank

Date Sampled: 06/30/14 00:00

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-08

Sample Matrix: Aqueous

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
1,1,1-Trichloroethane	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	07/01/14 15:29	CXG0009	CG40136
1,1,2-Trichloroethane	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
1,1-Dichloroethane	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
1,1-Dichloroethene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
1,1-Dichloropropene	ND (2.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
1,2,3-Trichloropropane	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
1,2-Dibromoethane	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
1,2-Dichlorobenzene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
1,2-Dichloroethane	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
1,2-Dichloropropane	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
1,3-Dichlorobenzene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
1,3-Dichloropropane	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
1,4-Dichlorobenzene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
1,4-Dioxane - Screen	ND (500)		8260B		1	07/01/14 15:29	CXG0009	CG40136
2,2-Dichloropropane	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
2-Butanone	ND (10.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
2-Chlorotoluene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
2-Hexanone	ND (10.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
4-Chlorotoluene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
4-Isopropyltoluene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Acetone	ND (10.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Benzene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Bromobenzene	ND (2.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Bromochloromethane	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: Trip Blank

Date Sampled: 06/30/14 00:00

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-08

Sample Matrix: Aqueous

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Bromodichloromethane	ND (0.6)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Bromoform	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Bromomethane	ND (2.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Carbon Disulfide	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Carbon Tetrachloride	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Chlorobenzene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Chloroethane	ND (2.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Chloroform	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Chloromethane	ND (2.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Dibromochloromethane	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Dibromomethane	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Dichlorodifluoromethane	ND (2.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Diethyl Ether	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Di-isopropyl ether	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Ethylbenzene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Hexachlorobutadiene	ND (0.6)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Hexachloroethane	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Isopropylbenzene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Methylene Chloride	ND (2.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Naphthalene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
n-Butylbenzene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
n-Propylbenzene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
sec-Butylbenzene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Styrene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
tert-Butylbenzene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Tetrachloroethene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Tetrahydrofuran	ND (5.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: Trip Blank

Date Sampled: 06/30/14 00:00

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1406681

ESS Laboratory Sample ID: 1406681-08

Sample Matrix: Aqueous

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Toluene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Trichloroethene	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Trichlorofluoromethane	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Vinyl Chloride	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Xylene O	ND (1.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Xylene P,M	ND (2.0)		8260B		1	07/01/14 15:29	CXG0009	CG40136
Xylenes (Total)	ND (2.0)		8260B		1	07/01/14 15:29		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	94 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	91 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	96 %		70-130
<i>Surrogate: Toluene-d8</i>	94 %		70-130



# ESS Laboratory

*Division of Thielsch Engineering, Inc.*

# BAL Laboratory

*The Microbiology Division  
of Thielsch Engineering, Inc.*



## CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1406681

## Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

### Batch CF43009 - 3510C

#### Blank

Aroclor 1016	ND	0.10	ug/L
Aroclor 1221	ND	0.10	ug/L
Aroclor 1232	ND	0.10	ug/L
Aroclor 1242	ND	0.10	ug/L
Aroclor 1248	ND	0.10	ug/L
Aroclor 1254	ND	0.10	ug/L
Aroclor 1260	ND	0.10	ug/L
Aroclor 1262	ND	0.10	ug/L
Aroclor 1268	ND	0.10	ug/L

*Surrogate: Decachlorobiphenyl* 0.0523 ug/L 0.05000 105 30-150

*Surrogate: Decachlorobiphenyl [2C]* 0.0612 ug/L 0.05000 122 30-150

*Surrogate: Tetrachloro-m-xylene* 0.0359 ug/L 0.05000 72 30-150

*Surrogate: Tetrachloro-m-xylene [2C]* 0.0398 ug/L 0.05000 80 30-150

#### LCS

Aroclor 1016	1.06	0.10	ug/L	1.000	106	40-140
Aroclor 1260	1.07	0.10	ug/L	1.000	107	40-140

*Surrogate: Decachlorobiphenyl* 0.0521 ug/L 0.05000 104 30-150

*Surrogate: Decachlorobiphenyl [2C]* 0.0604 ug/L 0.05000 121 30-150

*Surrogate: Tetrachloro-m-xylene* 0.0416 ug/L 0.05000 83 30-150

*Surrogate: Tetrachloro-m-xylene [2C]* 0.0435 ug/L 0.05000 87 30-150

#### LCS Dup

Aroclor 1016	1.11	0.10	ug/L	1.000	111	40-140	4	20
Aroclor 1260	1.07	0.10	ug/L	1.000	107	40-140	0.2	20

*Surrogate: Decachlorobiphenyl* 0.0483 ug/L 0.05000 97 30-150

*Surrogate: Decachlorobiphenyl [2C]* 0.0558 ug/L 0.05000 112 30-150

*Surrogate: Tetrachloro-m-xylene* 0.0439 ug/L 0.05000 88 30-150

*Surrogate: Tetrachloro-m-xylene [2C]* 0.0458 ug/L 0.05000 92 30-150

### Batch CG40320 - 3510C

#### Blank

Aroclor 1016	ND	0.10	ug/L
Aroclor 1221	ND	0.10	ug/L
Aroclor 1232	ND	0.10	ug/L
Aroclor 1242	ND	0.10	ug/L
Aroclor 1248	ND	0.10	ug/L
Aroclor 1254	ND	0.10	ug/L
Aroclor 1260	ND	0.10	ug/L
Aroclor 1262	ND	0.10	ug/L
Aroclor 1268	ND	0.10	ug/L

*Surrogate: Decachlorobiphenyl* 0.0538 ug/L 0.05000 108 30-150

*Surrogate: Decachlorobiphenyl [2C]* 0.0628 ug/L 0.05000 126 30-150



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Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8082A Polychlorinated Biphenyls (PCB)**

**Batch CG40320 - 3510C**

Surrogate: Tetrachloro-m-xylene	0.0372		ug/L	0.05000	74	30-150
Surrogate: Tetrachloro-m-xylene [2C]	0.0417		ug/L	0.05000	83	30-150

**LCS**

Aroclor 1016	1.07	0.10	ug/L	1.000	107	40-140
Aroclor 1260	1.08	0.10	ug/L	1.000	108	40-140

Surrogate: Decachlorobiphenyl	0.0517		ug/L	0.05000	103	30-150
Surrogate: Decachlorobiphenyl [2C]	0.0598		ug/L	0.05000	120	30-150
Surrogate: Tetrachloro-m-xylene	0.0408		ug/L	0.05000	82	30-150
Surrogate: Tetrachloro-m-xylene [2C]	0.0433		ug/L	0.05000	87	30-150

**LCS Dup**

Aroclor 1016	1.15	0.10	ug/L	1.000	115	40-140	7	20
Aroclor 1260	1.10	0.10	ug/L	1.000	110	40-140	2	20

Surrogate: Decachlorobiphenyl	0.0503		ug/L	0.05000	101	30-150
Surrogate: Decachlorobiphenyl [2C]	0.0576		ug/L	0.05000	115	30-150
Surrogate: Tetrachloro-m-xylene	0.0451		ug/L	0.05000	90	30-150
Surrogate: Tetrachloro-m-xylene [2C]	0.0477		ug/L	0.05000	95	30-150

**8260B Volatile Organic Compounds**

**Batch CG40136 - 5030B**

<b>Blank</b>										
1,1,1,2-Tetrachloroethane	ND	1.0		ug/L						
1,1,1-Trichloroethane	ND	1.0		ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5		ug/L						
1,1,2-Trichloroethane	ND	1.0		ug/L						
1,1-Dichloroethane	ND	1.0		ug/L						
1,1-Dichloroethene	ND	1.0		ug/L						
1,1-Dichloropropene	ND	2.0		ug/L						
1,2,3-Trichlorobenzene	ND	1.0		ug/L						
1,2,3-Trichloropropane	ND	1.0		ug/L						
1,2,4-Trichlorobenzene	ND	1.0		ug/L						
1,2,4-Trimethylbenzene	ND	1.0		ug/L						
1,2-Dibromo-3-Chloropropane	ND	5.0		ug/L						
1,2-Dibromoethane	ND	1.0		ug/L						
1,2-Dichlorobenzene	ND	1.0		ug/L						
1,2-Dichloroethane	ND	1.0		ug/L						
1,2-Dichloropropane	ND	1.0		ug/L						
1,3,5-Trimethylbenzene	ND	1.0		ug/L						
1,3-Dichlorobenzene	ND	1.0		ug/L						
1,3-Dichloropropane	ND	1.0		ug/L						
1,4-Dichlorobenzene	ND	1.0		ug/L						
1,4-Dioxane - Screen	ND	500		ug/L						
2,2-Dichloropropane	ND	1.0		ug/L						



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**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8260B Volatile Organic Compounds**

**Batch CG40136 - 5030B**

2-Butanone	ND	10.0	ug/L
2-Chlorotoluene	ND	1.0	ug/L
2-Hexanone	ND	10.0	ug/L
4-Chlorotoluene	ND	1.0	ug/L
4-Isopropyltoluene	ND	1.0	ug/L
4-Methyl-2-Pentanone	ND	10.0	ug/L
Acetone	ND	10.0	ug/L
Benzene	ND	1.0	ug/L
Bromobenzene	ND	2.0	ug/L
Bromochloromethane	ND	1.0	ug/L
Bromodichloromethane	ND	0.6	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
Carbon Disulfide	ND	1.0	ug/L
Carbon Tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroethane	ND	2.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	0.4	ug/L
Dibromochloromethane	ND	1.0	ug/L
Dibromomethane	ND	1.0	ug/L
Dichlorodifluoromethane	ND	2.0	ug/L
Diethyl Ether	ND	1.0	ug/L
Di-isopropyl ether	ND	1.0	ug/L
Ethyl tertiary-butyl ether	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Hexachlorobutadiene	ND	0.6	ug/L
Hexachloroethane	ND	1.0	ug/L
Isopropylbenzene	ND	1.0	ug/L
Methyl tert-Butyl Ether	ND	1.0	ug/L
Methylene Chloride	ND	2.0	ug/L
Naphthalene	ND	1.0	ug/L
n-Butylbenzene	ND	1.0	ug/L
n-Propylbenzene	ND	1.0	ug/L
sec-Butylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
tert-Butylbenzene	ND	1.0	ug/L
Tertiary-amyl methyl ether	ND	1.0	ug/L
Tetrachloroethene	ND	1.0	ug/L
Tetrahydrofuran	ND	5.0	ug/L
Toluene	ND	1.0	ug/L
trans-1,2-Dichloroethene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	0.4	ug/L



**CERTIFICATE OF ANALYSIS**

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**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8260B Volatile Organic Compounds**

**Batch CG40136 - 5030B**

Trichloroethene	ND	1.0	ug/L							
Trichlorofluoromethane	ND	1.0	ug/L							
Vinyl Chloride	ND	1.0	ug/L							
Xylene O	ND	1.0	ug/L							
Xylene P,M	ND	2.0	ug/L							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	22.9		ug/L	25.00		92	70-130			
<i>Surrogate: 4-Bromofluorobenzene</i>	23.6		ug/L	25.00		94	70-130			
<i>Surrogate: Dibromofluoromethane</i>	24.1		ug/L	25.00		96	70-130			
<i>Surrogate: Toluene-d8</i>	23.2		ug/L	25.00		93	70-130			

**LCS**

1,1,1,2-Tetrachloroethane	8.5	ug/L	10.00	85	70-130					
1,1,1-Trichloroethane	9.2	ug/L	10.00	92	70-130					
1,1,2,2-Tetrachloroethane	9.1	ug/L	10.00	91	70-130					
1,1,2-Trichloroethane	9.3	ug/L	10.00	93	70-130					
1,1-Dichloroethane	9.5	ug/L	10.00	95	70-130					
1,1-Dichloroethene	9.4	ug/L	10.00	94	70-130					
1,1-Dichloropropene	10.4	ug/L	10.00	104	70-130					
1,2,3-Trichlorobenzene	9.0	ug/L	10.00	90	70-130					
1,2,3-Trichloropropane	7.9	ug/L	10.00	79	70-130					
1,2,4-Trichlorobenzene	9.0	ug/L	10.00	90	70-130					
1,2,4-Trimethylbenzene	8.8	ug/L	10.00	88	70-130					
1,2-Dibromo-3-Chloropropane	8.1	ug/L	10.00	81	70-130					
1,2-Dibromoethane	9.7	ug/L	10.00	97	70-130					
1,2-Dichlorobenzene	10.2	ug/L	10.00	102	70-130					
1,2-Dichloroethane	9.4	ug/L	10.00	94	70-130					
1,2-Dichloropropane	9.0	ug/L	10.00	90	70-130					
1,3,5-Trimethylbenzene	8.6	ug/L	10.00	86	70-130					
1,3-Dichlorobenzene	10.0	ug/L	10.00	100	70-130					
1,3-Dichloropropane	9.5	ug/L	10.00	95	70-130					
1,4-Dichlorobenzene	9.9	ug/L	10.00	99	70-130					
1,4-Dioxane - Screen	235	ug/L	200.0	117	0-332					
2,2-Dichloropropane	8.5	ug/L	10.00	85	70-130					
2-Butanone	56.4	ug/L	50.00	113	70-130					
2-Chlorotoluene	9.6	ug/L	10.00	96	70-130					
2-Hexanone	52.9	ug/L	50.00	106	70-130					
4-Chlorotoluene	9.6	ug/L	10.00	96	70-130					
4-Isopropyltoluene	8.7	ug/L	10.00	87	70-130					
4-Methyl-2-Pentanone	46.4	ug/L	50.00	93	70-130					
Acetone	70.9	ug/L	50.00	142	70-130					B+
Benzene	9.5	ug/L	10.00	95	70-130					
Bromobenzene	9.9	ug/L	10.00	99	70-130					
Bromochloromethane	10.2	ug/L	10.00	102	70-130					
Bromodichloromethane	9.1	ug/L	10.00	91	70-130					
Bromoform	7.8	ug/L	10.00	78	70-130					
Bromomethane	9.5	ug/L	10.00	95	70-130					



**CERTIFICATE OF ANALYSIS**

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ESS Laboratory Work Order: 1406681

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8260B Volatile Organic Compounds**

**Batch CG40136 - 5030B**

Carbon Disulfide	9.1		ug/L	10.00	91	70-130				
Carbon Tetrachloride	9.0		ug/L	10.00	90	70-130				
Chlorobenzene	9.4		ug/L	10.00	94	70-130				
Chloroethane	7.4		ug/L	10.00	74	70-130				
Chloroform	8.9		ug/L	10.00	89	70-130				
Chloromethane	8.0		ug/L	10.00	80	70-130				
cis-1,2-Dichloroethene	9.8		ug/L	10.00	98	70-130				
cis-1,3-Dichloropropene	8.8		ug/L	10.00	88	70-130				
Dibromochloromethane	9.7		ug/L	10.00	97	70-130				
Dibromomethane	10.0		ug/L	10.00	100	70-130				
Dichlorodifluoromethane	7.2		ug/L	10.00	72	70-130				
Diethyl Ether	8.6		ug/L	10.00	86	70-130				
Di-isopropyl ether	10.3		ug/L	10.00	103	70-130				
Ethyl tertiary-butyl ether	9.0		ug/L	10.00	90	70-130				
Ethylbenzene	8.4		ug/L	10.00	84	70-130				
Hexachlorobutadiene	9.9		ug/L	10.00	99	70-130				
Hexachloroethane	9.7		ug/L	10.00	97	70-130				
Isopropylbenzene	9.2		ug/L	10.00	92	70-130				
Methyl tert-Butyl Ether	8.2		ug/L	10.00	82	70-130				
Methylene Chloride	9.7		ug/L	10.00	97	70-130				
Naphthalene	8.6		ug/L	10.00	86	70-130				
n-Butylbenzene	10.0		ug/L	10.00	100	70-130				
n-Propylbenzene	9.3		ug/L	10.00	93	70-130				
sec-Butylbenzene	9.5		ug/L	10.00	95	70-130				
Styrene	8.2		ug/L	10.00	82	70-130				
tert-Butylbenzene	8.8		ug/L	10.00	88	70-130				
Tertiary-amyl methyl ether	8.4		ug/L	10.00	84	70-130				
Tetrachloroethene	8.9		ug/L	10.00	89	70-130				
Tetrahydrofuran	9.5		ug/L	10.00	95	70-130				
Toluene	9.5		ug/L	10.00	95	70-130				
trans-1,2-Dichloroethene	10.5		ug/L	10.00	105	70-130				
trans-1,3-Dichloropropene	7.8		ug/L	10.00	78	70-130				
Trichloroethene	9.3		ug/L	10.00	93	70-130				
Trichlorofluoromethane	8.6		ug/L	10.00	86	70-130				
Vinyl Chloride	7.5		ug/L	10.00	75	70-130				
Xylene O	9.5		ug/L	10.00	95	70-130				
Xylene P,M	17.7		ug/L	20.00	89	70-130				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>26.8</i>		<i>ug/L</i>	<i>25.00</i>	<i>107</i>	<i>70-130</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>23.1</i>		<i>ug/L</i>	<i>25.00</i>	<i>92</i>	<i>70-130</i>				
<i>Surrogate: Dibromofluoromethane</i>	<i>27.0</i>		<i>ug/L</i>	<i>25.00</i>	<i>108</i>	<i>70-130</i>				
<i>Surrogate: Toluene-d8</i>	<i>23.2</i>		<i>ug/L</i>	<i>25.00</i>	<i>93</i>	<i>70-130</i>				

**LCS Dup**

1,1,1,2-Tetrachloroethane	9.4		ug/L	10.00	94	70-130	10	25		
1,1,1-Trichloroethane	10.3		ug/L	10.00	103	70-130	11	25		
1,1,2,2-Tetrachloroethane	9.6		ug/L	10.00	96	70-130	4	25		



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Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8260B Volatile Organic Compounds**

**Batch CG40136 - 5030B**

1,1,2-Trichloroethane	10.7		ug/L	10.00	107	70-130	14	25		
1,1-Dichloroethane	10.7		ug/L	10.00	107	70-130	12	25		
1,1-Dichloroethene	10.5		ug/L	10.00	105	70-130	10	25		
1,1-Dichloropropene	11.2		ug/L	10.00	112	70-130	8	25		
1,2,3-Trichlorobenzene	9.7		ug/L	10.00	97	70-130	7	25		
1,2,3-Trichloropropane	9.4		ug/L	10.00	94	70-130	18	25		
1,2,4-Trichlorobenzene	9.3		ug/L	10.00	93	70-130	3	25		
1,2,4-Trimethylbenzene	9.8		ug/L	10.00	98	70-130	11	25		
1,2-Dibromo-3-Chloropropane	9.2		ug/L	10.00	92	70-130	12	25		
1,2-Dibromoethane	10.0		ug/L	10.00	100	70-130	4	25		
1,2-Dichlorobenzene	10.7		ug/L	10.00	107	70-130	4	25		
1,2-Dichloroethane	10.1		ug/L	10.00	101	70-130	7	25		
1,2-Dichloropropane	9.8		ug/L	10.00	98	70-130	8	25		
1,3,5-Trimethylbenzene	9.9		ug/L	10.00	99	70-130	14	25		
1,3-Dichlorobenzene	11.0		ug/L	10.00	110	70-130	10	25		
1,3-Dichloropropane	10.4		ug/L	10.00	104	70-130	9	25		
1,4-Dichlorobenzene	11.1		ug/L	10.00	111	70-130	12	25		
1,4-Dioxane - Screen	229		ug/L	200.0	115	0-332	2	200		
2,2-Dichloropropane	9.5		ug/L	10.00	95	70-130	11	25		
2-Butanone	64.4		ug/L	50.00	129	70-130	13	25		
2-Chlorotoluene	10.8		ug/L	10.00	108	70-130	12	25		
2-Hexanone	55.6		ug/L	50.00	111	70-130	5	25		
4-Chlorotoluene	10.6		ug/L	10.00	106	70-130	10	25		
4-Isopropyltoluene	9.8		ug/L	10.00	98	70-130	12	25		
4-Methyl-2-Pentanone	54.4		ug/L	50.00	109	70-130	16	25		
Acetone	67.1		ug/L	50.00	134	70-130	5	25	B+	
Benzene	10.8		ug/L	10.00	108	70-130	13	25		
Bromobenzene	11.0		ug/L	10.00	110	70-130	11	25		
Bromochloromethane	11.3		ug/L	10.00	113	70-130	11	25		
Bromodichloromethane	10.4		ug/L	10.00	104	70-130	13	25		
Bromoform	9.3		ug/L	10.00	93	70-130	18	25		
Bromomethane	11.4		ug/L	10.00	114	70-130	18	25		
Carbon Disulfide	10.1		ug/L	10.00	101	70-130	11	25		
Carbon Tetrachloride	9.4		ug/L	10.00	94	70-130	5	25		
Chlorobenzene	10.4		ug/L	10.00	104	70-130	10	25		
Chloroethane	8.3		ug/L	10.00	83	70-130	12	25		
Chloroform	10.2		ug/L	10.00	102	70-130	14	25		
Chloromethane	9.2		ug/L	10.00	92	70-130	13	25		
cis-1,2-Dichloroethene	10.8		ug/L	10.00	108	70-130	10	25		
cis-1,3-Dichloropropene	10.2		ug/L	10.00	102	70-130	15	25		
Dibromochloromethane	11.0		ug/L	10.00	110	70-130	12	25		
Dibromomethane	11.0		ug/L	10.00	110	70-130	10	25		
Dichlorodifluoromethane	8.2		ug/L	10.00	82	70-130	13	25		
Diethyl Ether	9.6		ug/L	10.00	96	70-130	11	25		
Di-isopropyl ether	11.3		ug/L	10.00	113	70-130	10	25		



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1406681

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8260B Volatile Organic Compounds**

**Batch CG40136 - 5030B**

Ethyl tertiary-butyl ether	10.9		ug/L	10.00	109	70-130	19	25	
Ethylbenzene	9.3		ug/L	10.00	93	70-130	9	25	
Hexachlorobutadiene	11.4		ug/L	10.00	114	70-130	14	25	
Hexachloroethane	10.0		ug/L	10.00	100	70-130	2	25	
Isopropylbenzene	10.2		ug/L	10.00	102	70-130	10	25	
Methyl tert-Butyl Ether	9.4		ug/L	10.00	94	70-130	13	25	
Methylene Chloride	10.9		ug/L	10.00	109	70-130	12	25	
Naphthalene	9.0		ug/L	10.00	90	70-130	5	25	
n-Butylbenzene	10.7		ug/L	10.00	107	70-130	7	25	
n-Propylbenzene	10.7		ug/L	10.00	107	70-130	13	25	
sec-Butylbenzene	10.7		ug/L	10.00	107	70-130	12	25	
Styrene	9.3		ug/L	10.00	93	70-130	12	25	
tert-Butylbenzene	10.1		ug/L	10.00	101	70-130	14	25	
Tertiary-amyl methyl ether	9.6		ug/L	10.00	96	70-130	14	25	
Tetrachloroethene	10.2		ug/L	10.00	102	70-130	13	25	
Tetrahydrofuran	10.6		ug/L	10.00	106	70-130	12	25	
Toluene	11.1		ug/L	10.00	111	70-130	16	25	
trans-1,2-Dichloroethene	11.2		ug/L	10.00	112	70-130	7	25	
trans-1,3-Dichloropropene	8.5		ug/L	10.00	85	70-130	9	25	
Trichloroethene	10.5		ug/L	10.00	105	70-130	13	25	
Trichlorofluoromethane	9.0		ug/L	10.00	90	70-130	4	25	
Vinyl Chloride	8.8		ug/L	10.00	88	70-130	15	25	
Xylene O	10.3		ug/L	10.00	103	70-130	8	25	
Xylene P,M	19.7		ug/L	20.00	98	70-130	10	25	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	25.8		ug/L	25.00	103	70-130			
<i>Surrogate: 4-Bromofluorobenzene</i>	22.8		ug/L	25.00	91	70-130			
<i>Surrogate: Dibromofluoromethane</i>	27.8		ug/L	25.00	111	70-130			
<i>Surrogate: Toluene-d8</i>	23.0		ug/L	25.00	92	70-130			

**Batch CG40227 - 5030B**

Blank			
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloropropene	ND	2.0	ug/L
1,2,3-Trichlorobenzene	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
1,2,4-Trichlorobenzene	ND	1.0	ug/L
1,2,4-Trimethylbenzene	ND	1.0	ug/L
1,2-Dibromo-3-Chloropropane	ND	5.0	ug/L
1,2-Dibromoethane	ND	1.0	ug/L
1,2-Dichlorobenzene	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1406681

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8260B Volatile Organic Compounds**

**Batch CG40227 - 5030B**

1,2-Dichloropropane	ND	1.0	ug/L
1,3,5-Trimethylbenzene	ND	1.0	ug/L
1,3-Dichlorobenzene	ND	1.0	ug/L
1,3-Dichloropropane	ND	1.0	ug/L
1,4-Dichlorobenzene	ND	1.0	ug/L
1,4-Dioxane - Screen	ND	500	ug/L
2,2-Dichloropropane	ND	1.0	ug/L
2-Butanone	ND	10.0	ug/L
2-Chlorotoluene	ND	1.0	ug/L
2-Hexanone	ND	10.0	ug/L
4-Chlorotoluene	ND	1.0	ug/L
4-Isopropyltoluene	ND	1.0	ug/L
4-Methyl-2-Pentanone	ND	10.0	ug/L
Acetone	ND	10.0	ug/L
Benzene	ND	1.0	ug/L
Bromobenzene	ND	2.0	ug/L
Bromochloromethane	ND	1.0	ug/L
Bromodichloromethane	ND	0.6	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
Carbon Disulfide	ND	1.0	ug/L
Carbon Tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroethane	ND	2.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	0.4	ug/L
Dibromochloromethane	ND	1.0	ug/L
Dibromomethane	ND	1.0	ug/L
Dichlorodifluoromethane	ND	2.0	ug/L
Diethyl Ether	ND	1.0	ug/L
Di-isopropyl ether	ND	1.0	ug/L
Ethyl tertiary-butyl ether	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Hexachlorobutadiene	ND	0.6	ug/L
Hexachloroethane	ND	1.0	ug/L
Isopropylbenzene	ND	1.0	ug/L
Methyl tert-Butyl Ether	ND	1.0	ug/L
Methylene Chloride	ND	2.0	ug/L
Naphthalene	ND	1.0	ug/L
n-Butylbenzene	ND	1.0	ug/L
n-Propylbenzene	ND	1.0	ug/L
sec-Butylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L



**CERTIFICATE OF ANALYSIS**

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**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Qualifier
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**8260B Volatile Organic Compounds**

**Batch CG40227 - 5030B**

tert-Butylbenzene	ND	1.0	ug/L							
Tertiary-amyl methyl ether	ND	1.0	ug/L							
Tetrachloroethene	ND	1.0	ug/L							
Tetrahydrofuran	ND	5.0	ug/L							
Toluene	ND	1.0	ug/L							
trans-1,2-Dichloroethene	ND	1.0	ug/L							
trans-1,3-Dichloropropene	ND	0.4	ug/L							
Trichloroethene	ND	1.0	ug/L							
Trichlorofluoromethane	ND	1.0	ug/L							
Vinyl Chloride	ND	1.0	ug/L							
Xylene O	ND	1.0	ug/L							
Xylene P,M	ND	2.0	ug/L							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	24.6		ug/L	25.00		98		70-130		
<i>Surrogate: 4-Bromofluorobenzene</i>	23.6		ug/L	25.00		94		70-130		
<i>Surrogate: Dibromofluoromethane</i>	25.2		ug/L	25.00		101		70-130		
<i>Surrogate: Toluene-d8</i>	24.1		ug/L	25.00		97		70-130		

**LCS**

1,1,1,2-Tetrachloroethane	9.3		ug/L	10.00		93		70-130		
1,1,1-Trichloroethane	10.3		ug/L	10.00		103		70-130		
1,1,2,2-Tetrachloroethane	10.6		ug/L	10.00		106		70-130		
1,1,2-Trichloroethane	10.6		ug/L	10.00		106		70-130		
1,1-Dichloroethane	10.4		ug/L	10.00		104		70-130		
1,1-Dichloroethene	10.5		ug/L	10.00		105		70-130		
1,1-Dichloropropene	11.1		ug/L	10.00		111		70-130		
1,2,3-Trichlorobenzene	9.8		ug/L	10.00		98		70-130		
1,2,3-Trichloropropane	8.4		ug/L	10.00		84		70-130		
1,2,4-Trichlorobenzene	9.6		ug/L	10.00		96		70-130		
1,2,4-Trimethylbenzene	9.3		ug/L	10.00		93		70-130		
1,2-Dibromo-3-Chloropropane	10.5		ug/L	10.00		105		70-130		
1,2-Dibromoethane	10.2		ug/L	10.00		102		70-130		
1,2-Dichlorobenzene	10.8		ug/L	10.00		108		70-130		
1,2-Dichloroethane	10.8		ug/L	10.00		108		70-130		
1,2-Dichloropropane	10.4		ug/L	10.00		104		70-130		
1,3,5-Trimethylbenzene	9.5		ug/L	10.00		95		70-130		
1,3-Dichlorobenzene	10.3		ug/L	10.00		103		70-130		
1,3-Dichloropropane	10.5		ug/L	10.00		105		70-130		
1,4-Dichlorobenzene	10.6		ug/L	10.00		106		70-130		
1,4-Dioxane - Screen	291		ug/L	200.0		146		0-332		
2,2-Dichloropropane	9.5		ug/L	10.00		95		70-130		
2-Butanone	58.9		ug/L	50.00		118		70-130		
2-Chlorotoluene	10.4		ug/L	10.00		104		70-130		
2-Hexanone	55.3		ug/L	50.00		111		70-130		
4-Chlorotoluene	10.2		ug/L	10.00		102		70-130		
4-Isopropyltoluene	10.0		ug/L	10.00		100		70-130		
4-Methyl-2-Pentanone	54.1		ug/L	50.00		108		70-130		



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1406681

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8260B Volatile Organic Compounds**

**Batch CG40227 - 5030B**

Acetone	63.8		ug/L	50.00	128	70-130				
Benzene	10.7		ug/L	10.00	107	70-130				
Bromobenzene	9.9		ug/L	10.00	99	70-130				
Bromochloromethane	11.8		ug/L	10.00	118	70-130				
Bromodichloromethane	10.8		ug/L	10.00	108	70-130				
Bromoform	9.6		ug/L	10.00	96	70-130				
Bromomethane	8.1		ug/L	10.00	81	70-130				
Carbon Disulfide	10.2		ug/L	10.00	102	70-130				
Carbon Tetrachloride	9.4		ug/L	10.00	94	70-130				
Chlorobenzene	10.4		ug/L	10.00	104	70-130				
Chloroethane	7.5		ug/L	10.00	75	70-130				
Chloroform	9.7		ug/L	10.00	97	70-130				
Chloromethane	7.4		ug/L	10.00	74	70-130				
cis-1,2-Dichloroethene	10.7		ug/L	10.00	107	70-130				
cis-1,3-Dichloropropene	10.2		ug/L	10.00	102	70-130				
Dibromochloromethane	11.1		ug/L	10.00	111	70-130				
Dibromomethane	11.4		ug/L	10.00	114	70-130				
Dichlorodifluoromethane	7.8		ug/L	10.00	78	70-130				
Diethyl Ether	9.9		ug/L	10.00	99	70-130				
Di-isopropyl ether	11.3		ug/L	10.00	113	70-130				
Ethyl tertiary-butyl ether	10.1		ug/L	10.00	101	70-130				
Ethylbenzene	9.4		ug/L	10.00	94	70-130				
Hexachlorobutadiene	10.3		ug/L	10.00	103	70-130				
Hexachloroethane	9.9		ug/L	10.00	99	70-130				
Isopropylbenzene	9.6		ug/L	10.00	96	70-130				
Methyl tert-Butyl Ether	9.0		ug/L	10.00	90	70-130				
Methylene Chloride	10.7		ug/L	10.00	107	70-130				
Naphthalene	9.2		ug/L	10.00	92	70-130				
n-Butylbenzene	11.0		ug/L	10.00	110	70-130				
n-Propylbenzene	10.3		ug/L	10.00	103	70-130				
sec-Butylbenzene	10.7		ug/L	10.00	107	70-130				
Styrene	9.4		ug/L	10.00	94	70-130				
tert-Butylbenzene	9.9		ug/L	10.00	99	70-130				
Tertiary-amyl methyl ether	9.2		ug/L	10.00	92	70-130				
Tetrachloroethene	10.0		ug/L	10.00	100	70-130				
Tetrahydrofuran	10.5		ug/L	10.00	105	70-130				
Toluene	10.2		ug/L	10.00	102	70-130				
trans-1,2-Dichloroethene	11.0		ug/L	10.00	110	70-130				
trans-1,3-Dichloropropene	8.2		ug/L	10.00	82	70-130				
Trichloroethene	11.5		ug/L	10.00	115	70-130				
Trichlorofluoromethane	9.4		ug/L	10.00	94	70-130				
Vinyl Chloride	8.0		ug/L	10.00	80	70-130				
Xylene O	10.1		ug/L	10.00	101	70-130				
Xylene P,M	18.8		ug/L	20.00	94	70-130				
Surrogate: 1,2-Dichloroethane-d4	27.2		ug/L	25.00	109	70-130				



**CERTIFICATE OF ANALYSIS**

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**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8260B Volatile Organic Compounds**

**Batch CG40227 - 5030B**

*Surrogate: 4-Bromofluorobenzene*

23.1 ug/L 25.00 92 70-130

*Surrogate: Dibromofluoromethane*

28.5 ug/L 25.00 114 70-130

*Surrogate: Toluene-d8*

23.6 ug/L 25.00 94 70-130

**LCS Dup**

1,1,1,2-Tetrachloroethane	9.0	ug/L	10.00		90	70-130	3	25
1,1,1-Trichloroethane	10.0	ug/L	10.00		100	70-130	4	25
1,1,2,2-Tetrachloroethane	10.4	ug/L	10.00		104	70-130	1	25
1,1,2-Trichloroethane	10.0	ug/L	10.00		100	70-130	6	25
1,1-Dichloroethane	9.8	ug/L	10.00		98	70-130	7	25
1,1-Dichloroethene	10.2	ug/L	10.00		102	70-130	3	25
1,1-Dichloropropene	10.5	ug/L	10.00		105	70-130	6	25
1,2,3-Trichlorobenzene	9.0	ug/L	10.00		90	70-130	8	25
1,2,3-Trichloropropane	9.0	ug/L	10.00		90	70-130	6	25
1,2,4-Trichlorobenzene	8.9	ug/L	10.00		89	70-130	7	25
1,2,4-Trimethylbenzene	9.1	ug/L	10.00		91	70-130	2	25
1,2-Dibromo-3-Chloropropane	8.6	ug/L	10.00		86	70-130	19	25
1,2-Dibromoethane	9.8	ug/L	10.00		98	70-130	4	25
1,2-Dichlorobenzene	11.0	ug/L	10.00		110	70-130	1	25
1,2-Dichloroethane	9.5	ug/L	10.00		95	70-130	12	25
1,2-Dichloropropane	10.1	ug/L	10.00		101	70-130	2	25
1,3,5-Trimethylbenzene	9.1	ug/L	10.00		91	70-130	4	25
1,3-Dichlorobenzene	10.9	ug/L	10.00		109	70-130	5	25
1,3-Dichloropropane	10.1	ug/L	10.00		101	70-130	4	25
1,4-Dichlorobenzene	10.2	ug/L	10.00		102	70-130	3	25
1,4-Dioxane - Screen	210	ug/L	200.0		105	0-332	33	200
2,2-Dichloropropane	9.2	ug/L	10.00		92	70-130	4	25
2-Butanone	57.1	ug/L	50.00		114	70-130	3	25
2-Chlorotoluene	10.4	ug/L	10.00		104	70-130	0.5	25
2-Hexanone	52.1	ug/L	50.00		104	70-130	6	25
4-Chlorotoluene	10.2	ug/L	10.00		102	70-130	0.6	25
4-Isopropyltoluene	9.3	ug/L	10.00		93	70-130	6	25
4-Methyl-2-Pentanone	49.8	ug/L	50.00		100	70-130	8	25
Acetone	57.4	ug/L	50.00		115	70-130	11	25
Benzene	10.3	ug/L	10.00		103	70-130	4	25
Bromobenzene	10.1	ug/L	10.00		101	70-130	2	25
Bromochloromethane	10.7	ug/L	10.00		107	70-130	9	25
Bromodichloromethane	10.0	ug/L	10.00		100	70-130	8	25
Bromoform	8.7	ug/L	10.00		87	70-130	10	25
Bromomethane	7.7	ug/L	10.00		77	70-130	5	25
Carbon Disulfide	9.6	ug/L	10.00		96	70-130	6	25
Carbon Tetrachloride	9.3	ug/L	10.00		93	70-130	1	25
Chlorobenzene	10.1	ug/L	10.00		101	70-130	4	25
Chloroethane	7.3	ug/L	10.00		73	70-130	3	25
Chloroform	9.1	ug/L	10.00		91	70-130	7	25



**CERTIFICATE OF ANALYSIS**

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Client Project ID: Grant Gear

ESS Laboratory Work Order: 1406681

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8260B Volatile Organic Compounds**

**Batch CG40227 - 5030B**

Chloromethane	7.4		ug/L	10.00	74	70-130	0.1	25		
cis-1,2-Dichloroethene	10.4		ug/L	10.00	104	70-130	3	25		
cis-1,3-Dichloropropene	10.0		ug/L	10.00	100	70-130	2	25		
Dibromochloromethane	10.0		ug/L	10.00	100	70-130	10	25		
Dibromomethane	10.8		ug/L	10.00	108	70-130	6	25		
Dichlorodifluoromethane	7.4		ug/L	10.00	74	70-130	5	25		
Diethyl Ether	9.5		ug/L	10.00	95	70-130	4	25		
Di-isopropyl ether	10.8		ug/L	10.00	108	70-130	5	25		
Ethyl tertiary-butyl ether	9.5		ug/L	10.00	95	70-130	7	25		
Ethylbenzene	9.0		ug/L	10.00	90	70-130	5	25		
Hexachlorobutadiene	10.6		ug/L	10.00	106	70-130	3	25		
Hexachloroethane	9.5		ug/L	10.00	95	70-130	4	25		
Isopropylbenzene	9.5		ug/L	10.00	95	70-130	0.9	25		
Methyl tert-Butyl Ether	8.1		ug/L	10.00	81	70-130	10	25		
Methylene Chloride	9.8		ug/L	10.00	98	70-130	9	25		
Naphthalene	8.8		ug/L	10.00	88	70-130	5	25		
n-Butylbenzene	9.3		ug/L	10.00	93	70-130	17	25		
n-Propylbenzene	10.0		ug/L	10.00	100	70-130	4	25		
sec-Butylbenzene	10.6		ug/L	10.00	106	70-130	0.7	25		
Styrene	8.7		ug/L	10.00	87	70-130	9	25		
tert-Butylbenzene	9.2		ug/L	10.00	92	70-130	7	25		
Tertiary-amyl methyl ether	9.1		ug/L	10.00	91	70-130	0.4	25		
Tetrachloroethene	8.5		ug/L	10.00	85	70-130	15	25		
Tetrahydrofuran	10.2		ug/L	10.00	102	70-130	3	25		
Toluene	9.8		ug/L	10.00	98	70-130	4	25		
trans-1,2-Dichloroethene	10.6		ug/L	10.00	106	70-130	4	25		
trans-1,3-Dichloropropene	8.1		ug/L	10.00	81	70-130	0.6	25		
Trichloroethene	9.8		ug/L	10.00	98	70-130	16	25		
Trichlorofluoromethane	8.8		ug/L	10.00	88	70-130	7	25		
Vinyl Chloride	8.1		ug/L	10.00	81	70-130	1	25		
Xylene O	9.6		ug/L	10.00	96	70-130	5	25		
Xylene P,M	17.7		ug/L	20.00	88	70-130	6	25		
Surrogate: 1,2-Dichloroethane-d4	26.4		ug/L	25.00	105	70-130				
Surrogate: 4-Bromofluorobenzene	23.4		ug/L	25.00	94	70-130				
Surrogate: Dibromofluoromethane	26.8		ug/L	25.00	107	70-130				
Surrogate: Toluene-d8	23.2		ug/L	25.00	93	70-130				



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1406681

**Notes and Definitions**

U	Analyte included in the analysis, but not detected
D	Diluted.
C-	Continuing Calibration recovery is below lower control limit (C-).
B+	Blank Spike recovery is above upper control limit (B+).
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report



### **CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Grant Gear

ESS Laboratory Work Order: 1406681

### **ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS**

#### **ENVIRONMENTAL**

Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP)  
A2LA Accredited: Testing Cert# 2864.01  
<http://www.a2la.org/scopepdf/2864-01.pdf>

Rhode Island Potable and Non Potable Water: LAI00179  
<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750  
[http://www.ct.gov/dph/lib/dph/environmental\\_health/environmental\\_laboratories/pdf/OutofStateCommercialLaboratories.pdf](http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf)

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI0002  
<http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls>

Massachusetts Potable and Non Potable Water: M-RI002  
<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424  
<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313  
<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006  
[http://datamine2.state.nj.us/DEP\\_OPRA/OpraMain/pi\\_main?mode=pi\\_by\\_site&sort\\_order=PI\\_NAMEA&Select+a+Site:=58715](http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715)

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752  
[http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory\\_accreditation\\_program/590095](http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095)

#### **CHEMISTRY**

A2LA Accredited: Testing Cert # 2864.01  
Lead in Paint, Phthalates, Lead in Children's Metals Products (Including Jewelry)  
<http://www.A2LA.org/dirsearchnew/newsearch.cfm>

CPSC ID# 1141  
Lead Paint, Lead in Children's Metals Jewelry  
<http://www.cpsc.gov/cgi-bin/labapplist.aspx>

**Sample and Cooler Receipt Checklist**

Client: GZA GeoEnvironmental, Inc.  
 Client Project ID: \_\_\_\_\_  
 Shipped/Delivered Via: ESS Courier

ESS Project ID: 14060681  
 Date Project Due: 7/7/14 - 7/13/14 (ac) ESS 6/30/14  
 Days For Project: 5 Day

**Items to be checked upon receipt:**

1. Air Bill Manifest Present?

Air No.:

 \* No

10. Are the samples properly preserved?

 Yes

2. Were Custody Seals Present?

 No

11. Proper sample containers used?

 Yes

3. Were Custody Seals Intact?

 N/A

12. Any air bubbles in the VOA vials?

 \* Yes

4. Is Radiation count &lt; 100 CPM?

 Yes

13. Holding times exceeded?

 No

5. Is a cooler present?

 Yes

14. Sufficient sample volumes?

 YesCooler Temp: 1.6Iced With: Ice

15. Any Subcontracting needed?

 No

6. Was COC included with samples?

 Yes16. Are ESS labels on correct containers?  Yes  No

7. Was COC signed and dated by client?

 Yes17. Were samples received intact?  Yes  No

8. Does the COC match the sample

 Yes

ESS Sample IDs: \_\_\_\_\_

9. Is COC complete and correct?

 Yes

Sub Lab: \_\_\_\_\_

18. Was there need to call project manager to discuss status? If yes, please explain.

Sample #3 one filter amber not completely full. Only received half bottle 500ml's.

6/30/14

Who was called?: \_\_\_\_\_

By whom? \_\_\_\_\_

Sample Number	Properly Preserved	Container Type	# of Containers	Preservative
1	Yes	1 L Glass	2	NP
1	Yes	40 ml - VOA	3	HCL
2	Yes	1 L Glass	2	NP
2	Yes	40 ml - VOA	3	HCL
3	Yes	1 L Glass	2	NP
3	Yes	40 ml - VOA	3	HCL
4	Yes	1 L Glass	2	NP
4	Yes	40 ml - VOA	3	HCL
5	Yes	1 L Glass	2	NP
5	Yes	40 ml - VOA	3	HCL
6	Yes	1 L Glass	2	NP
6	Yes	40 ml - VOA	3	HCL
7	Yes	1 L Glass	2	NP
7	Yes	40 ml - VOA	3	HCL
8	Yes	40 ml - VOA	3	HCL

Completed By: JOGDate/Time: 6/30/14 2120Reviewed By: None byDate/Time: 7/1/14 1055

# ESS Laboratory

Division of Thielsch Engineering, Inc.

185 Frances Avenue, Cranston, RI 02910-2211

Tel. (401) 461-7181 Fax (401) 461-4486

[www.esslaboratory.com](http://www.esslaboratory.com)

# CHAIN OF CUSTODY

Page 1 of 1

Turn Time <input checked="" type="checkbox"/> Standard <input type="checkbox"/> Other _____ If faster than 5 days, prior approval by laboratory is required # _____	Reporting Limits	ESS LAB PROJECT ID <u>1406681</u>
State where samples were collected from: MA RI CT NH NJ NY ME Other _____		
Is this project for any of the following: MA-MCP <input type="checkbox"/> Navy <input type="checkbox"/> USACE <input type="checkbox"/> Other _____	Electronic Deliverable <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Format: Excel <input type="checkbox"/> Access <input type="checkbox"/> RDF <input type="checkbox"/> Other _____

Co. Name <u>GZA</u>			Project # <u>01.0018605</u>	Project Name (20 Char. or less) <u>Grant Gear</u>			Write Required Analysis							
Contact Person <u>Bill Davis</u>			Address <u>249 Vanderbilt Ap</u>			Number of Containers	Type of Containers	<u>8260B VCS</u>	<u>PCBS 8082</u>					
City <u>Norwalk</u>	State <u>Ma</u>	Zip <u>02062</u>	PO#											
Telephone # <u>781-987-357</u>	Fax #	Email Address <u>wdavis@929.com</u>												
ESS LAB Sample #	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)			Pres Code					
1	6/30/14	1000 am	X	GW	- MW-1A				HCL	5	1/4	X	X	
2		1045 am	X		- ME-17 (B4)					1	1	X	X	
3		230 pm	X		- ME-10					1	1	X	X	
4		1158 am	X		- MW-EW-11					1	1	X	X	
5		130 pm	X		- B-28					1	1	X	X	
6			X		- MW-3AR					1	1	X	X	
7		1100 am	X	V	Duplic-te					1	1	X	X	
8	✓	1130 pm	X	V	Trp Blank				HCL	3	1/2	X		

Container Type: P-Poly G-Glass S-Sterile V-VOA Matrix: S-Soil SD-Solid D-Sludge WW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters

Cooler Present  Yes  No Internal Use Only Preservation Code 1- NP, 2- HC1, 3- H<sub>2</sub>SO<sub>4</sub>, 4- HNO<sub>3</sub>, 5- NaOH, 6- MeOH, 7- Asorbic Acid, 8- ZnAct, 9-

Seals Intact  Yes  No NA: \_\_\_\_\_ [ ] Pickup Sampled by: Bill Davis 38 containers

Cooler Temp: 1.6 °C ICE [ ] Technicians \_\_\_\_\_ Comments: Samples collected using low-flow sample methods with x's

Relinquished by: (Signature) <u>Bill Davis</u>	Date/Time <u>6/30/14 1330 hr</u>	Received by: (Signature) <u>John</u>	Date/Time <u>6/30/14 1435</u>	Relinquished by: (Signature) <u>John</u>	Date/Time <u>6/30/14 1658</u>	Received by: (Signature) <u>John</u>	Date/Time <u>6/30/14 2110</u>
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

\*By circling MA-MCP, client acknowledges samples were collected in accordance with MADEP CAM VII A

Please fax all changes to Chain of Custody in writing.

1 (White) Lab Copy 2 (Yellow) Client Receipt



**CERTIFICATE OF ANALYSIS**

Bill Davis  
GZA GeoEnvironmental, Inc.  
249 Vanderbilt Avenue  
Norwood, MA 02062

**RE: Grant Gear (01.0018605.00)**  
**ESS Laboratory Work Order Number: 1411519**

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard  
Laboratory Director

**REVIEWED**

**By ESS Laboratory at 3:59 pm, Dec 03, 2014**

**Analytical Summary**

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1411519

**SAMPLE RECEIPT**

The following samples were received on November 24, 2014 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has performed and reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

For EPH soil samples, the aromatic range results have been corrected for identified cartridge contaminant in accordance with the CAM protocol.

<b>Lab Number</b>	<b>Sample Name</b>	<b>Matrix</b>	<b>Analysis</b>
1411519-01	MW-1A	Ground Water	8082A, 8260B
1411519-02	Duplicate	Ground Water	8082A, 8260B
1411519-03	ME-17 134	Ground Water	8082A, 8260B
1411519-04	ME-10	Ground Water	8082A, 8260B
1411519-05	MW-EW-11	Ground Water	8082A, 8260B
1411519-06	B-28	Ground Water	8082A, 8260B
1411519-07	MW-3AR	Ground Water	8082A, 8260B
1411519-08	SW-1	Surface Water	8082A
1411519-09	SW-Duplicate	Surface Water	8082A
1411519-10	SW-2	Surface Water	8082A
1411519-11	SW-3	Surface Water	8082A
1411519-12	Trip Blank	Aqueous	8260B



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1411519

**PROJECT NARRATIVE**

**8260B Volatile Organic Compounds**

CK42545-BS1

Blank Spike recovery is above upper control limit (B+).

Bromomethane (139% @ 70-130%), Dichlorodifluoromethane (132% @ 70-130%)

CK42545-BSD1

Blank Spike recovery is above upper control limit (B+).

Dichlorodifluoromethane (140% @ 70-130%), Vinyl Chloride (142% @ 70-130%)

CK42647-BS1

Blank Spike recovery is above upper control limit (B+).

Tertiary-amyl methyl ether (131% @ 70-130%)

CK42647-BSD1

Relative percent difference for duplicate is outside of criteria (D+).

Chloroethane (30%)

**No other observations noted.**

**End of Project Narrative.**

**DATA USABILITY LINKS**

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1411519

**CURRENT SW-846 METHODOLOGY VERSIONS**

**Analytical Methods**

1010A - Flashpoint  
6010C - ICP  
6020A - ICP MS  
7010 - Graphite Furnace  
7196A - Hexavalent Chromium  
7470A - Aqueous Mercury  
7471B - Solid Mercury  
8011 - EDB/DBCP/TCP  
8015D - GRO/DRO  
8081B - Pesticides  
8082A - PCB  
8100M - TPH  
8151A - Herbicides  
8260B - VOA  
8270D - SVOA  
8270D SIM - SVOA Low Level  
9014 - Cyanide  
9038 - Sulfate  
9040C - Aqueous pH  
9045D - Solid pH (Corrosivity)  
9050A - Specific Conductance  
9056A - Anions (IC)  
9060A - TOC  
9095B - Paint Filter  
MADEP 04-1.1 - EPH / VPH

**Prep Methods**

3005A - Aqueous ICP and Graphite Furnace Digestion  
3020A - Aqueous ICP MS Digestion  
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion  
3060A - Solid Hexavalent Chromium Digestion  
3510C - Separatory Funnel Extraction  
3520C - Liquid / Liquid Extraction  
3540C - Manual Soxhlet Extraction  
3541 - Automated Soxhlet Extraction  
3546 - Microwave Extraction  
3580A - Waste Dilution  
5030B - Aqueous Purge and Trap  
5030C - Aqueous Purge and Trap  
5035 - Solid Purge and Trap



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Grant Gear

ESS Laboratory Work Order: 1411519

**MassDEP Analytical Protocol Certification Form**

MADEP RTN: \_\_\_\_\_

This form provides certification for the following data set: **1411519-01 through 1411519-12**

Matrices:  Ground Water/Surface Water       Soil/Sediment       Drinking Water       Air       Other: \_\_\_\_\_

**CAM Protocol** (check all that apply below):

- |                              |                               |                             |                                    |  |                             |
|------------------------------|-------------------------------|-----------------------------|------------------------------------|--|-----------------------------|
| (X) 8260 VOC<br>CAM II A     | ( ) 7470/7471 Hg<br>CAM III B | ( ) MassDEP VPH<br>CAM IV A | ( ) 8081 Pesticides<br>CAM V B     | ( ) 7196 Hex Cr<br>CAM VI B            | ( ) MassDEP APH<br>CAM IX A |
| ( ) 8270 SVOC<br>CAM II B    | ( ) 7010 Metals<br>CAM III C  | ( ) MassDEP EPH<br>CAM IV B | ( ) 8151 Herbicides<br>CAM V C     | ( ) 8330 Explosives<br>CAM VIII A      | ( ) TO-15 VOC<br>CAM IX B   |
| ( ) 6010 Metals<br>CAM III A | ( ) 6020 Metals<br>CAM III D  | (X) 8082 PCB<br>CAM V A     | ( ) 6860 Perchlorate<br>CAM VIII B | ( ) 9014 Total Cyanide/PAC<br>CAM VI A |                             |

**Affirmative responses to questions A through F are required for Presumptive Certainty'status**

- |   |                |
|---|----------------|
| A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? | Yes (X) No ( ) |
| B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?  | Yes (X) No ( ) |
| C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?  | Yes (X) No ( ) |
| D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?                  | Yes (X) No ( ) |
| E a. VPH, EPH, APH and TO-15 only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).  | Yes ( ) No ( ) |
| b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?  | Yes ( ) No ( ) |
| F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?                                   | Yes (X) No ( ) |

**Responses to Questions G, H and I below are required for Presumptive Certainty'status**

- |   |                 |
|---|-----------------|
| G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?   | Yes (X) No ( )* |
| <b><u>Data User Note: Data that achieve Presumptive Certainty'status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.</u></b> |                 |
| H Were all QC performance standards specified in the CAM protocol(s) achieved?  | Yes ( ) No (X)* |
| I Were results reported for the complete analyte list specified in the selected CAM protocol(s)?  | Yes (X) No ( )* |

\*All negative responses must be addressed in an attached laboratory narrative.

**I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.**

Signature: Laurel Stoddard

Printed Name: Laurel Stoddard

Date: December 03, 2014

Position: Laboratory Director



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: MW-1A

Date Sampled: 11/21/14 10:58

Percent Solids: N/A

Initial Volume: 1070

Final Volume: 1

Extraction Method: 3510C

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-01

Sample Matrix: Ground Water

Units: ug/L

Analyst: TAJ

Prepared: 11/24/14 9:02

Cleanup Method: 3665A

**8082A Polychlorinated Biphenyls (PCB)**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Aroclor 1016	ND (0.09)		8082A		1	11/26/14 13:11		CK42453
Aroclor 1221	ND (0.09)		8082A		1	11/26/14 13:11		CK42453
Aroclor 1232	ND (0.09)		8082A		1	11/26/14 13:11		CK42453
Aroclor 1242	ND (0.09)		8082A		1	11/26/14 13:11		CK42453
<b>Aroclor 1248</b>	<b>0.50 (0.09)</b>		8082A		1	11/26/14 13:11		CK42453
<b>Aroclor 1254</b>	<b>0.32 (0.09)</b>		8082A		1	11/26/14 13:11		CK42453
Aroclor 1260	ND (0.09)		8082A		1	11/26/14 13:11		CK42453
Aroclor 1262	ND (0.09)		8082A		1	11/26/14 13:11		CK42453
Aroclor 1268	ND (0.09)		8082A		1	11/26/14 13:11		CK42453

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	68 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	66 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	77 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	86 %		30-150



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: MW-1A

Date Sampled: 11/21/14 10:58

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-01

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
1,1,1-Trichloroethane	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	11/25/14 20:05	CXK0344	CK42545
1,1,2-Trichloroethane	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
1,1-Dichloroethane	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
1,1-Dichloroethene	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
1,1-Dichloropropene	ND (2.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
<b>1,2,3-Trichlorobenzene</b>	<b>7.8 (1.0)</b>		8260B		1	11/25/14 20:05	CXK0344	CK42545
1,2,3-Trichloropropane	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
<b>1,2,4-Trichlorobenzene</b>	<b>43.0 (1.0)</b>		8260B		1	11/25/14 20:05	CXK0344	CK42545
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
1,2-Dibromoethane	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
<b>1,2-Dichlorobenzene</b>	<b>4.1 (1.0)</b>		8260B		1	11/25/14 20:05	CXK0344	CK42545
1,2-Dichloroethane	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
1,2-Dichloropropane	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
<b>1,3-Dichlorobenzene</b>	<b>124 (10.0)</b>		8260B		10	11/26/14 16:43	CXK0344	CK42545
1,3-Dichloropropane	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
<b>1,4-Dichlorobenzene</b>	<b>120 (10.0)</b>		8260B		10	11/26/14 16:43	CXK0344	CK42545
1,4-Dioxane - Screen	ND (500)		8260B		1	11/25/14 20:05	CXK0344	CK42545
2,2-Dichloropropane	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
2-Butanone	ND (10.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
2-Chlorotoluene	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
2-Hexanone	ND (10.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
4-Chlorotoluene	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
4-Isopropyltoluene	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Acetone	ND (10.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Benzene	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Bromobenzene	ND (2.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Bromochloromethane	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: MW-1A

Date Sampled: 11/21/14 10:58

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-01

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Bromodichloromethane	ND (0.6)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Bromoform	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Bromomethane	ND (2.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
<b>Carbon Disulfide</b>	<b>1.7 (1.0)</b>		8260B		1	11/25/14 20:05	CXK0344	CK42545
Carbon Tetrachloride	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
<b>Chlorobenzene</b>	<b>398 (10.0)</b>		8260B		10	11/26/14 16:43	CXK0344	CK42545
Chloroethane	ND (2.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Chloroform	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Chloromethane	ND (2.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
<b>cis-1,2-Dichloroethene</b>	<b>4.8 (1.0)</b>		8260B		1	11/25/14 20:05	CXK0344	CK42545
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Dibromochloromethane	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Dibromomethane	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Dichlorodifluoromethane	ND (2.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Diethyl Ether	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Di-isopropyl ether	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Ethylbenzene	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Hexachlorobutadiene	ND (0.6)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Hexachloroethane	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Isopropylbenzene	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Methylene Chloride	ND (2.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Naphthalene	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
n-Butylbenzene	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
n-Propylbenzene	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
sec-Butylbenzene	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Styrene	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
tert-Butylbenzene	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Tetrachloroethene	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Tetrahydrofuran	ND (5.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: MW-1A

Date Sampled: 11/21/14 10:58

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-01

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
<b>trans-1,2-Dichloroethene</b>	<b>1.3 (1.0)</b>		8260B		1	11/25/14 20:05	CXK0344	CK42545
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	11/25/14 20:05	CXK0344	CK42545
<b>Trichloroethene</b>	<b>21.3 (1.0)</b>		8260B		1	11/25/14 20:05	CXK0344	CK42545
Trichlorofluoromethane	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
<b>Vinyl Chloride</b>	<b>16.3 (1.0)</b>		8260B		1	11/25/14 20:05	CXK0344	CK42545
Xylene O	ND (1.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Xylene P,M	ND (2.0)		8260B		1	11/25/14 20:05	CXK0344	CK42545
Xylenes (Total)	ND (2.0)		8260B		1	11/25/14 20:05		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	112 %		70-130
Surrogate: 4-Bromofluorobenzene	80 %		70-130
Surrogate: Dibromofluoromethane	112 %		70-130
Surrogate: Toluene-d8	87 %		70-130



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: Duplicate

Date Sampled: 11/21/14 10:58

Percent Solids: N/A

Initial Volume: 1070

Final Volume: 1

Extraction Method: 3510C

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-02

Sample Matrix: Ground Water

Units: ug/L

Analyst: TAJ

Prepared: 11/24/14 9:02

Cleanup Method: 3665A

**8082A Polychlorinated Biphenyls (PCB)**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Aroclor 1016	ND (0.09)		8082A		1	11/26/14 13:31		CK42453
Aroclor 1221	ND (0.09)		8082A		1	11/26/14 13:31		CK42453
Aroclor 1232	ND (0.09)		8082A		1	11/26/14 13:31		CK42453
Aroclor 1242	ND (0.09)		8082A		1	11/26/14 13:31		CK42453
<b>Aroclor 1248</b>	<b>1.67 (0.09)</b>		8082A		1	11/26/14 13:31		CK42453
<b>Aroclor 1254</b>	<b>1.39 (0.09)</b>		8082A		1	11/26/14 13:31		CK42453
<b>Aroclor 1260</b>	<b>0.37 (0.09)</b>		8082A		1	11/26/14 13:31		CK42453
Aroclor 1262	ND (0.09)		8082A		1	11/26/14 13:31		CK42453
Aroclor 1268	ND (0.09)		8082A		1	11/26/14 13:31		CK42453

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	65 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	60 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	83 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	75 %		30-150



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: Duplicate

Date Sampled: 11/21/14 10:58

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-02

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
1,1,1-Trichloroethane	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	11/25/14 20:30	CXK0344	CK42545
1,1,2-Trichloroethane	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
1,1-Dichloroethane	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
1,1-Dichloroethene	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
1,1-Dichloropropene	ND (2.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
<b>1,2,3-Trichlorobenzene</b>	<b>8.0 (1.0)</b>		8260B		1	11/25/14 20:30	CXK0344	CK42545
1,2,3-Trichloropropane	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
<b>1,2,4-Trichlorobenzene</b>	<b>42.9 (1.0)</b>		8260B		1	11/25/14 20:30	CXK0344	CK42545
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
1,2-Dibromoethane	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
<b>1,2-Dichlorobenzene</b>	<b>4.3 (1.0)</b>		8260B		1	11/25/14 20:30	CXK0344	CK42545
1,2-Dichloroethane	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
1,2-Dichloropropane	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
<b>1,3-Dichlorobenzene</b>	<b>119 (10.0)</b>		8260B		10	11/26/14 17:08	CXK0344	CK42545
1,3-Dichloropropane	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
<b>1,4-Dichlorobenzene</b>	<b>124 (10.0)</b>		8260B		10	11/26/14 17:08	CXK0344	CK42545
1,4-Dioxane - Screen	ND (500)		8260B		1	11/25/14 20:30	CXK0344	CK42545
2,2-Dichloropropane	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
2-Butanone	ND (10.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
2-Chlorotoluene	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
2-Hexanone	ND (10.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
4-Chlorotoluene	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
4-Isopropyltoluene	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Acetone	ND (10.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Benzene	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Bromobenzene	ND (2.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Bromochloromethane	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: Duplicate

Date Sampled: 11/21/14 10:58

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-02

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Bromodichloromethane	ND (0.6)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Bromoform	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Bromomethane	ND (2.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
<b>Carbon Disulfide</b>	<b>1.4 (1.0)</b>		8260B		1	11/25/14 20:30	CXK0344	CK42545
Carbon Tetrachloride	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
<b>Chlorobenzene</b>	<b>392 (10.0)</b>		8260B		10	11/26/14 17:08	CXK0344	CK42545
Chloroethane	ND (2.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Chloroform	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Chloromethane	ND (2.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
<b>cis-1,2-Dichloroethene</b>	<b>4.9 (1.0)</b>		8260B		1	11/25/14 20:30	CXK0344	CK42545
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Dibromochloromethane	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Dibromomethane	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Dichlorodifluoromethane	ND (2.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Diethyl Ether	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Di-isopropyl ether	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Ethylbenzene	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Hexachlorobutadiene	ND (0.6)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Hexachloroethane	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Isopropylbenzene	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Methylene Chloride	ND (2.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Naphthalene	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
n-Butylbenzene	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
n-Propylbenzene	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
sec-Butylbenzene	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Styrene	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
tert-Butylbenzene	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Tetrachloroethene	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Tetrahydrofuran	ND (5.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: Duplicate

Date Sampled: 11/21/14 10:58

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-02

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
<b>trans-1,2-Dichloroethene</b>	<b>1.0</b> (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	11/25/14 20:30	CXK0344	CK42545
<b>Trichloroethene</b>	<b>21.9</b> (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Trichlorofluoromethane	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
<b>Vinyl Chloride</b>	<b>16.8</b> (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Xylene O	ND (1.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Xylene P,M	ND (2.0)		8260B		1	11/25/14 20:30	CXK0344	CK42545
Xylenes (Total)	ND (2.0)		8260B		1	11/25/14 20:30		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	116 %		70-130
Surrogate: 4-Bromofluorobenzene	80 %		70-130
Surrogate: Dibromofluoromethane	113 %		70-130
Surrogate: Toluene-d8	87 %		70-130



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: ME-17 134

Date Sampled: 11/21/14 11:43

Percent Solids: N/A

Initial Volume: 1070

Final Volume: 1

Extraction Method: 3510C

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-03

Sample Matrix: Ground Water

Units: ug/L

Analyst: TAJ

Prepared: 11/24/14 9:02

Cleanup Method: 3665A

**8082A Polychlorinated Biphenyls (PCB)**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Aroclor 1016	ND (0.09)		8082A		1	11/26/14 13:50		CK42453
Aroclor 1221	ND (0.09)		8082A		1	11/26/14 13:50		CK42453
Aroclor 1232	ND (0.09)		8082A		1	11/26/14 13:50		CK42453
Aroclor 1242	ND (0.09)		8082A		1	11/26/14 13:50		CK42453
<b>Aroclor 1248</b>	<b>0.33 (0.09)</b>		8082A		1	11/26/14 13:50		CK42453
Aroclor 1254	ND (0.09)		8082A		1	11/26/14 13:50		CK42453
Aroclor 1260	ND (0.09)		8082A		1	11/26/14 13:50		CK42453
Aroclor 1262	ND (0.09)		8082A		1	11/26/14 13:50		CK42453
Aroclor 1268	ND (0.09)		8082A		1	11/26/14 13:50		CK42453

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	78 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	75 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	80 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	75 %		30-150



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: ME-17 134

Date Sampled: 11/21/14 11:43

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-03

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
1,1,1-Trichloroethane	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	11/26/14 14:32	CXK0361	CK42647
1,1,2-Trichloroethane	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
1,1-Dichloroethane	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
1,1-Dichloroethene	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
1,1-Dichloropropene	ND (2.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
1,2,3-Trichloropropane	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
1,2-Dibromoethane	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
1,2-Dichlorobenzene	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
1,2-Dichloroethane	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
1,2-Dichloropropane	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
1,3-Dichlorobenzene	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
1,3-Dichloropropane	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
1,4-Dichlorobenzene	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
1,4-Dioxane - Screen	ND (500)		8260B		1	11/26/14 14:32	CXK0361	CK42647
2,2-Dichloropropane	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
2-Butanone	ND (10.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
2-Chlorotoluene	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
2-Hexanone	ND (10.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
4-Chlorotoluene	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
4-Isopropyltoluene	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Acetone	ND (10.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Benzene	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Bromobenzene	ND (2.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Bromochloromethane	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: ME-17 134

Date Sampled: 11/21/14 11:43

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-03

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Bromodichloromethane	ND (0.6)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Bromoform	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Bromomethane	ND (2.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Carbon Disulfide	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Carbon Tetrachloride	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Chlorobenzene	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Chloroethane	ND (2.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Chloroform	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Chloromethane	ND (2.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Dibromochloromethane	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Dibromomethane	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Dichlorodifluoromethane	ND (2.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Diethyl Ether	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Di-isopropyl ether	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Ethylbenzene	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Hexachlorobutadiene	ND (0.6)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Hexachloroethane	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Isopropylbenzene	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Methylene Chloride	ND (2.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Naphthalene	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
n-Butylbenzene	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
n-Propylbenzene	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
sec-Butylbenzene	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Styrene	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
tert-Butylbenzene	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Tetrachloroethene	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Tetrahydrofuran	ND (5.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: ME-17 134

Date Sampled: 11/21/14 11:43

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-03

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	3.3 (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Trichloroethene	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Trichlorofluoromethane	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Vinyl Chloride	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Xylene O	ND (1.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Xylene P,M	ND (2.0)		8260B		1	11/26/14 14:32	CXK0361	CK42647
Xylenes (Total)	ND (2.0)		8260B		1	11/26/14 14:32		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	106 %		70-130
Surrogate: 4-Bromofluorobenzene	81 %		70-130
Surrogate: Dibromofluoromethane	104 %		70-130
Surrogate: Toluene-d8	91 %		70-130



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: ME-10

Date Sampled: 11/21/14 13:15

Percent Solids: N/A

Initial Volume: 1070

Final Volume: 1

Extraction Method: 3510C

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-04

Sample Matrix: Ground Water

Units: ug/L

Analyst: TAJ

Prepared: 11/24/14 9:02

Cleanup Method: 3665A

**8082A Polychlorinated Biphenyls (PCB)**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Aroclor 1016	ND (0.09)		8082A		1	11/26/14 14:09		CK42453
Aroclor 1221	ND (0.09)		8082A		1	11/26/14 14:09		CK42453
Aroclor 1232	ND (0.09)		8082A		1	11/26/14 14:09		CK42453
Aroclor 1242	ND (0.09)		8082A		1	11/26/14 14:09		CK42453
Aroclor 1248	ND (0.09)		8082A		1	11/26/14 14:09		CK42453
<b>Aroclor 1254</b>	<b>0.35 (0.09)</b>		8082A		1	11/26/14 14:09		CK42453
Aroclor 1260	ND (0.09)		8082A		1	11/26/14 14:09		CK42453
Aroclor 1262	ND (0.09)		8082A		1	11/26/14 14:09		CK42453
Aroclor 1268	ND (0.09)		8082A		1	11/26/14 14:09		CK42453

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	76 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	74 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	70 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	75 %		30-150



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: ME-10

Date Sampled: 11/21/14 13:15

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-04

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
1,1,1-Trichloroethane	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	11/26/14 14:58	CXK0361	CK42647
1,1,2-Trichloroethane	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
1,1-Dichloroethane	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
1,1-Dichloroethene	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
1,1-Dichloropropene	ND (2.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
1,2,3-Trichloropropane	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
1,2-Dibromoethane	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
1,2-Dichlorobenzene	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
1,2-Dichloroethane	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
1,2-Dichloropropane	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
1,3-Dichlorobenzene	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
1,3-Dichloropropane	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
<b>1,4-Dichlorobenzene</b>	<b>1.9 (1.0)</b>		8260B		1	11/26/14 14:58	CXK0361	CK42647
1,4-Dioxane - Screen	ND (500)		8260B		1	11/26/14 14:58	CXK0361	CK42647
2,2-Dichloropropane	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
2-Butanone	ND (10.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
2-Chlorotoluene	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
2-Hexanone	ND (10.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
4-Chlorotoluene	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
4-Isopropyltoluene	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Acetone	ND (10.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Benzene	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Bromobenzene	ND (2.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Bromochloromethane	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: ME-10

Date Sampled: 11/21/14 13:15

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-04

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Bromodichloromethane	ND (0.6)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Bromoform	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Bromomethane	ND (2.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Carbon Disulfide	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Carbon Tetrachloride	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
<b>Chlorobenzene</b>	<b>1.6</b> (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Chloroethane	ND (2.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Chloroform	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Chloromethane	ND (2.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Dibromochloromethane	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Dibromomethane	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Dichlorodifluoromethane	ND (2.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Diethyl Ether	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Di-isopropyl ether	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Ethylbenzene	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Hexachlorobutadiene	ND (0.6)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Hexachloroethane	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Isopropylbenzene	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Methylene Chloride	ND (2.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Naphthalene	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
n-Butylbenzene	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
n-Propylbenzene	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
sec-Butylbenzene	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Styrene	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
tert-Butylbenzene	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Tetrachloroethene	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Tetrahydrofuran	ND (5.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: ME-10

Date Sampled: 11/21/14 13:15

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-04

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Trichloroethene	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Trichlorofluoromethane	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Vinyl Chloride	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Xylene O	ND (1.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Xylene P,M	ND (2.0)		8260B		1	11/26/14 14:58	CXK0361	CK42647
Xylenes (Total)	ND (2.0)		8260B		1	11/26/14 14:58		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	106 %		70-130
Surrogate: 4-Bromofluorobenzene	81 %		70-130
Surrogate: Dibromofluoromethane	107 %		70-130
Surrogate: Toluene-d8	90 %		70-130



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: MW-EW-11

Date Sampled: 11/21/14 12:40

Percent Solids: N/A

Initial Volume: 1070

Final Volume: 1

Extraction Method: 3510C

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-05

Sample Matrix: Ground Water

Units: ug/L

Analyst: TAJ

Prepared: 11/24/14 9:02

Cleanup Method: 3665A

**8082A Polychlorinated Biphenyls (PCB)**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Aroclor 1016	ND (0.09)		8082A		1	11/25/14 18:30		CK42409
Aroclor 1221	ND (0.09)		8082A		1	11/25/14 18:30		CK42409
Aroclor 1232	ND (0.09)		8082A		1	11/25/14 18:30		CK42409
Aroclor 1242	ND (0.09)		8082A		1	11/25/14 18:30		CK42409
Aroclor 1248	ND (0.09)		8082A		1	11/25/14 18:30		CK42409
Aroclor 1254	ND (0.09)		8082A		1	11/25/14 18:30		CK42409
Aroclor 1260	ND (0.09)		8082A		1	11/25/14 18:30		CK42409
Aroclor 1262	ND (0.09)		8082A		1	11/25/14 18:30		CK42409
Aroclor 1268	ND (0.09)		8082A		1	11/25/14 18:30		CK42409

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	74 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	69 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	63 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	70 %		30-150



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: MW-EW-11

Date Sampled: 11/21/14 12:40

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-05

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
1,1,1-Trichloroethane	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	11/25/14 21:45	CXK0344	CK42545
1,1,2-Trichloroethane	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
1,1-Dichloroethane	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
1,1-Dichloroethene	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
1,1-Dichloropropene	ND (2.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
<b>1,2,3-Trichlorobenzene</b>	<b>1.6 (1.0)</b>		8260B		1	11/25/14 21:45	CXK0344	CK42545
1,2,3-Trichloropropane	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
<b>1,2,4-Trichlorobenzene</b>	<b>1.8 (1.0)</b>		8260B		1	11/25/14 21:45	CXK0344	CK42545
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
1,2-Dibromoethane	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
1,2-Dichlorobenzene	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
1,2-Dichloroethane	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
1,2-Dichloropropane	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
1,3-Dichlorobenzene	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
1,3-Dichloropropane	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
1,4-Dichlorobenzene	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
1,4-Dioxane - Screen	ND (500)		8260B		1	11/25/14 21:45	CXK0344	CK42545
2,2-Dichloropropane	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
2-Butanone	ND (10.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
2-Chlorotoluene	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
2-Hexanone	ND (10.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
4-Chlorotoluene	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
4-Isopropyltoluene	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Acetone	ND (10.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Benzene	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Bromobenzene	ND (2.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Bromochloromethane	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: MW-EW-11

Date Sampled: 11/21/14 12:40

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-05

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Bromodichloromethane	ND (0.6)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Bromoform	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Bromomethane	ND (2.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Carbon Disulfide	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Carbon Tetrachloride	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Chlorobenzene	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Chloroethane	ND (2.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Chloroform	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Chloromethane	ND (2.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
<b>cis-1,2-Dichloroethene</b>	<b>55.8 (1.0)</b>		8260B		1	11/25/14 21:45	CXK0344	CK42545
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Dibromochloromethane	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Dibromomethane	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Dichlorodifluoromethane	ND (2.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Diethyl Ether	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Di-isopropyl ether	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Ethylbenzene	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Hexachlorobutadiene	ND (0.6)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Hexachloroethane	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Isopropylbenzene	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Methylene Chloride	ND (2.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Naphthalene	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
n-Butylbenzene	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
n-Propylbenzene	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
sec-Butylbenzene	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Styrene	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
tert-Butylbenzene	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
<b>Tetrachloroethene</b>	<b>6.8 (1.0)</b>		8260B		1	11/25/14 21:45	CXK0344	CK42545
Tetrahydrofuran	ND (5.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: MW-EW-11

Date Sampled: 11/21/14 12:40

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-05

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	11/25/14 21:45	CXK0344	CK42545
<b>Trichloroethene</b>	<b>132 (10.0)</b>		8260B		10	11/26/14 17:33	CXK0344	CK42545
Trichlorofluoromethane	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Vinyl Chloride	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Xylene O	ND (1.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Xylene P,M	ND (2.0)		8260B		1	11/25/14 21:45	CXK0344	CK42545
Xylenes (Total)	ND (2.0)		8260B		1	11/25/14 21:45		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	112 %		70-130
Surrogate: 4-Bromofluorobenzene	76 %		70-130
Surrogate: Dibromofluoromethane	112 %		70-130
Surrogate: Toluene-d8	90 %		70-130



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: B-28

Date Sampled: 11/21/14 13:39

Percent Solids: N/A

Initial Volume: 1070

Final Volume: 1

Extraction Method: 3510C

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-06

Sample Matrix: Ground Water

Units: ug/L

Analyst: TAJ

Prepared: 11/24/14 9:02

Cleanup Method: 3665A

**8082A Polychlorinated Biphenyls (PCB)**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Aroclor 1016	ND (0.09)		8082A		1	11/25/14 18:49		CK42409
Aroclor 1221	ND (0.09)		8082A		1	11/25/14 18:49		CK42409
Aroclor 1232	ND (0.09)		8082A		1	11/25/14 18:49		CK42409
Aroclor 1242	ND (0.09)		8082A		1	11/25/14 18:49		CK42409
Aroclor 1248	ND (0.09)		8082A		1	11/25/14 18:49		CK42409
<b>Aroclor 1254</b>	<b>0.16 (0.09)</b>		8082A		1	11/25/14 18:49		CK42409
Aroclor 1260	ND (0.09)		8082A		1	11/25/14 18:49		CK42409
Aroclor 1262	ND (0.09)		8082A		1	11/25/14 18:49		CK42409
Aroclor 1268	ND (0.09)		8082A		1	11/25/14 18:49		CK42409

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	89 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	85 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	77 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	86 %		30-150



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: B-28

Date Sampled: 11/21/14 13:39

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-06

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
1,1,1-Trichloroethane	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	11/25/14 22:10	CXK0344	CK42545
1,1,2-Trichloroethane	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
1,1-Dichloroethane	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
1,1-Dichloroethene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
1,1-Dichloropropene	ND (2.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
1,2,3-Trichloropropane	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
1,2-Dibromoethane	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
1,2-Dichlorobenzene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
1,2-Dichloroethane	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
1,2-Dichloropropane	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
1,3-Dichlorobenzene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
1,3-Dichloropropane	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
1,4-Dichlorobenzene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
1,4-Dioxane - Screen	ND (500)		8260B		1	11/25/14 22:10	CXK0344	CK42545
2,2-Dichloropropane	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
2-Butanone	ND (10.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
2-Chlorotoluene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
2-Hexanone	ND (10.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
4-Chlorotoluene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
4-Isopropyltoluene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Acetone	ND (10.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Benzene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Bromobenzene	ND (2.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Bromochloromethane	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: B-28

Date Sampled: 11/21/14 13:39

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-06

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Bromodichloromethane	ND (0.6)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Bromoform	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Bromomethane	ND (2.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Carbon Disulfide	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Carbon Tetrachloride	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Chlorobenzene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Chloroethane	ND (2.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Chloroform	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Chloromethane	ND (2.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Dibromochloromethane	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Dibromomethane	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Dichlorodifluoromethane	ND (2.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Diethyl Ether	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Di-isopropyl ether	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Ethylbenzene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Hexachlorobutadiene	ND (0.6)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Hexachloroethane	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Isopropylbenzene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Methylene Chloride	ND (2.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Naphthalene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
n-Butylbenzene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
n-Propylbenzene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
sec-Butylbenzene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Styrene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
tert-Butylbenzene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Tetrachloroethene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Tetrahydrofuran	ND (5.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: B-28

Date Sampled: 11/21/14 13:39

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-06

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Trichloroethene	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Trichlorofluoromethane	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Vinyl Chloride	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Xylene O	ND (1.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Xylene P,M	ND (2.0)		8260B		1	11/25/14 22:10	CXK0344	CK42545
Xylenes (Total)	ND (2.0)		8260B		1	11/25/14 22:10		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	116 %		70-130
Surrogate: 4-Bromofluorobenzene	80 %		70-130
Surrogate: Dibromofluoromethane	112 %		70-130
Surrogate: Toluene-d8	87 %		70-130



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: MW-3AR

Date Sampled: 11/21/14 14:15

Percent Solids: N/A

Initial Volume: 1070

Final Volume: 1

Extraction Method: 3510C

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-07

Sample Matrix: Ground Water

Units: ug/L

Analyst: TAJ

Prepared: 11/24/14 9:02

Cleanup Method: 3665A

**8082A Polychlorinated Biphenyls (PCB)**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Aroclor 1016	ND (0.09)		8082A		1	11/25/14 19:08		CK42409
Aroclor 1221	ND (0.09)		8082A		1	11/25/14 19:08		CK42409
Aroclor 1232	ND (0.09)		8082A		1	11/25/14 19:08		CK42409
Aroclor 1242	ND (0.09)		8082A		1	11/25/14 19:08		CK42409
Aroclor 1248	ND (0.09)		8082A		1	11/25/14 19:08		CK42409
Aroclor 1254	ND (0.09)		8082A		1	11/25/14 19:08		CK42409
Aroclor 1260	ND (0.09)		8082A		1	11/25/14 19:08		CK42409
Aroclor 1262	ND (0.09)		8082A		1	11/25/14 19:08		CK42409
Aroclor 1268	ND (0.09)		8082A		1	11/25/14 19:08		CK42409

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	60 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	52 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	61 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	66 %		30-150



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: MW-3AR

Date Sampled: 11/21/14 14:15

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-07

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
1,1,1-Trichloroethane	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	11/25/14 22:35	CXK0344	CK42545
1,1,2-Trichloroethane	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
1,1-Dichloroethane	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
1,1-Dichloroethene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
1,1-Dichloropropene	ND (2.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
1,2,3-Trichloropropane	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
1,2-Dibromoethane	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
1,2-Dichlorobenzene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
1,2-Dichloroethane	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
1,2-Dichloropropane	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
1,3-Dichlorobenzene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
1,3-Dichloropropane	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
1,4-Dichlorobenzene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
1,4-Dioxane - Screen	ND (500)		8260B		1	11/25/14 22:35	CXK0344	CK42545
2,2-Dichloropropane	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
2-Butanone	ND (10.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
2-Chlorotoluene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
2-Hexanone	ND (10.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
4-Chlorotoluene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
4-Isopropyltoluene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Acetone	ND (10.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Benzene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Bromobenzene	ND (2.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Bromochloromethane	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: MW-3AR

Date Sampled: 11/21/14 14:15

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-07

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Bromodichloromethane	ND (0.6)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Bromoform	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Bromomethane	ND (2.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Carbon Disulfide	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Carbon Tetrachloride	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Chlorobenzene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Chloroethane	ND (2.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Chloroform	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Chloromethane	ND (2.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Dibromochloromethane	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Dibromomethane	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Dichlorodifluoromethane	ND (2.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Diethyl Ether	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Di-isopropyl ether	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Ethylbenzene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Hexachlorobutadiene	ND (0.6)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Hexachloroethane	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Isopropylbenzene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Methylene Chloride	ND (2.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Naphthalene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
n-Butylbenzene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
n-Propylbenzene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
sec-Butylbenzene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Styrene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
tert-Butylbenzene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Tetrachloroethene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Tetrahydrofuran	ND (5.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: MW-3AR

Date Sampled: 11/21/14 14:15

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-07

Sample Matrix: Ground Water

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Trichloroethene	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Trichlorofluoromethane	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Vinyl Chloride	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Xylene O	ND (1.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Xylene P,M	ND (2.0)		8260B		1	11/25/14 22:35	CXK0344	CK42545
Xylenes (Total)	ND (2.0)		8260B		1	11/25/14 22:35		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	117 %		70-130
Surrogate: 4-Bromofluorobenzene	78 %		70-130
Surrogate: Dibromofluoromethane	115 %		70-130
Surrogate: Toluene-d8	90 %		70-130



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: SW-1

Date Sampled: 11/21/14 09:50

Percent Solids: N/A

Initial Volume: 1070

Final Volume: 1

Extraction Method: 3510C

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-08

Sample Matrix: Surface Water

Units: ug/L

Analyst: TAJ

Prepared: 11/24/14 9:02

Cleanup Method: 3665A

**8082A Polychlorinated Biphenyls (PCB)**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Aroclor 1016	ND (0.09)		8082A		1	11/25/14 19:28		CK42409
Aroclor 1221	ND (0.09)		8082A		1	11/25/14 19:28		CK42409
Aroclor 1232	ND (0.09)		8082A		1	11/25/14 19:28		CK42409
Aroclor 1242	ND (0.09)		8082A		1	11/25/14 19:28		CK42409
Aroclor 1248	ND (0.09)		8082A		1	11/25/14 19:28		CK42409
Aroclor 1254	ND (0.09)		8082A		1	11/25/14 19:28		CK42409
Aroclor 1260	ND (0.09)		8082A		1	11/25/14 19:28		CK42409
Aroclor 1262	ND (0.09)		8082A		1	11/25/14 19:28		CK42409
Aroclor 1268	ND (0.09)		8082A		1	11/25/14 19:28		CK42409

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	78 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	71 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	65 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	72 %		30-150



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: SW-Duplicate

Date Sampled: 11/21/14 10:02

Percent Solids: N/A

Initial Volume: 1070

Final Volume: 1

Extraction Method: 3510C

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-09

Sample Matrix: Surface Water

Units: ug/L

Analyst: TAJ

Prepared: 11/24/14 9:02

Cleanup Method: 3665A

**8082A Polychlorinated Biphenyls (PCB)**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Aroclor 1016	ND (0.09)		8082A		1	11/25/14 19:47		CK42409
Aroclor 1221	ND (0.09)		8082A		1	11/25/14 19:47		CK42409
Aroclor 1232	ND (0.09)		8082A		1	11/25/14 19:47		CK42409
Aroclor 1242	ND (0.09)		8082A		1	11/25/14 19:47		CK42409
Aroclor 1248	ND (0.09)		8082A		1	11/25/14 19:47		CK42409
Aroclor 1254	ND (0.09)		8082A		1	11/25/14 19:47		CK42409
Aroclor 1260	ND (0.09)		8082A		1	11/25/14 19:47		CK42409
Aroclor 1262	ND (0.09)		8082A		1	11/25/14 19:47		CK42409
Aroclor 1268	ND (0.09)		8082A		1	11/25/14 19:47		CK42409

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	79 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	74 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	72 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	79 %		30-150



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: SW-2

Date Sampled: 11/21/14 10:15

Percent Solids: N/A

Initial Volume: 1070

Final Volume: 1

Extraction Method: 3510C

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-10

Sample Matrix: Surface Water

Units: ug/L

Analyst: TAJ

Prepared: 11/24/14 9:02

Cleanup Method: 3665A

**8082A Polychlorinated Biphenyls (PCB)**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Aroclor 1016	ND (0.09)		8082A		1	11/26/14 8:10		CK42409
Aroclor 1221	ND (0.09)		8082A		1	11/26/14 8:10		CK42409
Aroclor 1232	ND (0.09)		8082A		1	11/26/14 8:10		CK42409
Aroclor 1242	ND (0.09)		8082A		1	11/26/14 8:10		CK42409
Aroclor 1248	ND (0.09)		8082A		1	11/26/14 8:10		CK42409
Aroclor 1254	ND (0.09)		8082A		1	11/26/14 8:10		CK42409
Aroclor 1260	ND (0.09)		8082A		1	11/26/14 8:10		CK42409
Aroclor 1262	ND (0.09)		8082A		1	11/26/14 8:10		CK42409
Aroclor 1268	ND (0.09)		8082A		1	11/26/14 8:10		CK42409

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	92 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	89 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	86 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	94 %		30-150



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: SW-3

Date Sampled: 11/21/14 10:20

Percent Solids: N/A

Initial Volume: 1070

Final Volume: 1

Extraction Method: 3510C

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-11

Sample Matrix: Surface Water

Units: ug/L

Analyst: TAJ

Prepared: 11/24/14 9:02

Cleanup Method: 3665A

**8082A Polychlorinated Biphenyls (PCB)**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Aroclor 1016	ND (0.09)		8082A		1	11/26/14 8:30		CK42409
Aroclor 1221	ND (0.09)		8082A		1	11/26/14 8:30		CK42409
Aroclor 1232	ND (0.09)		8082A		1	11/26/14 8:30		CK42409
Aroclor 1242	ND (0.09)		8082A		1	11/26/14 8:30		CK42409
Aroclor 1248	ND (0.09)		8082A		1	11/26/14 8:30		CK42409
Aroclor 1254	ND (0.09)		8082A		1	11/26/14 8:30		CK42409
Aroclor 1260	ND (0.09)		8082A		1	11/26/14 8:30		CK42409
Aroclor 1262	ND (0.09)		8082A		1	11/26/14 8:30		CK42409
Aroclor 1268	ND (0.09)		8082A		1	11/26/14 8:30		CK42409

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	103 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	101 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	97 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	103 %		30-150



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: Trip Blank

Date Sampled: 11/21/14 00:00

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-12

Sample Matrix: Aqueous

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
1,1,1-Trichloroethane	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	11/25/14 19:15	CXK0344	CK42545
1,1,2-Trichloroethane	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
1,1-Dichloroethane	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
1,1-Dichloroethene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
1,1-Dichloropropene	ND (2.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
1,2,3-Trichloropropane	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
1,2-Dibromoethane	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
1,2-Dichlorobenzene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
1,2-Dichloroethane	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
1,2-Dichloropropane	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
1,3-Dichlorobenzene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
1,3-Dichloropropane	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
1,4-Dichlorobenzene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
1,4-Dioxane - Screen	ND (500)		8260B		1	11/25/14 19:15	CXK0344	CK42545
2,2-Dichloropropane	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
2-Butanone	ND (10.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
2-Chlorotoluene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
2-Hexanone	ND (10.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
4-Chlorotoluene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
4-Isopropyltoluene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Acetone	ND (10.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Benzene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Bromobenzene	ND (2.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Bromochloromethane	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: Trip Blank

Date Sampled: 11/21/14 00:00

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-12

Sample Matrix: Aqueous

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Bromodichloromethane	ND (0.6)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Bromoform	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Bromomethane	ND (2.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Carbon Disulfide	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Carbon Tetrachloride	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Chlorobenzene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Chloroethane	ND (2.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Chloroform	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Chloromethane	ND (2.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Dibromochloromethane	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Dibromomethane	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Dichlorodifluoromethane	ND (2.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Diethyl Ether	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Di-isopropyl ether	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Ethylbenzene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Hexachlorobutadiene	ND (0.6)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Hexachloroethane	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Isopropylbenzene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Methylene Chloride	ND (2.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Naphthalene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
n-Butylbenzene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
n-Propylbenzene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
sec-Butylbenzene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Styrene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
tert-Butylbenzene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Tetrachloroethene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Tetrahydrofuran	ND (5.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: Trip Blank

Date Sampled: 11/21/14 00:00

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

ESS Laboratory Work Order: 1411519

ESS Laboratory Sample ID: 1411519-12

Sample Matrix: Aqueous

Units: ug/L

Analyst: MD

**8260B Volatile Organic Compounds**

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Trichloroethene	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Trichlorofluoromethane	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Vinyl Chloride	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Xylene O	ND (1.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Xylene P,M	ND (2.0)		8260B		1	11/25/14 19:15	CXK0344	CK42545
Xylenes (Total)	ND (2.0)		8260B		1	11/25/14 19:15		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	113 %		70-130
Surrogate: 4-Bromofluorobenzene	79 %		70-130
Surrogate: Dibromofluoromethane	110 %		70-130
Surrogate: Toluene-d8	86 %		70-130



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1411519

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

**Batch CK42409 - 3510C**

**Blank**

Aroclor 1016	ND	0.10	ug/L
Aroclor 1221	ND	0.10	ug/L
Aroclor 1232	ND	0.10	ug/L
Aroclor 1242	ND	0.10	ug/L
Aroclor 1248	ND	0.10	ug/L
Aroclor 1254	ND	0.10	ug/L
Aroclor 1260	ND	0.10	ug/L
Aroclor 1262	ND	0.10	ug/L
Aroclor 1268	ND	0.10	ug/L

Surrogate: Decachlorobiphenyl 0.0434 ug/L 0.05000 87 30-150

Surrogate: Decachlorobiphenyl [2C] 0.0350 ug/L 0.05000 70 30-150

Surrogate: Tetrachloro-m-xylene 0.0222 ug/L 0.05000 44 30-150

Surrogate: Tetrachloro-m-xylene [2C] 0.0228 ug/L 0.05000 46 30-150

**LCS**

Aroclor 1016	0.77	0.10	ug/L	1.000	77	40-140
Aroclor 1260	0.81	0.10	ug/L	1.000	81	40-140

Surrogate: Decachlorobiphenyl 0.0443 ug/L 0.05000 89 30-150

Surrogate: Decachlorobiphenyl [2C] 0.0358 ug/L 0.05000 72 30-150

Surrogate: Tetrachloro-m-xylene 0.0274 ug/L 0.05000 55 30-150

Surrogate: Tetrachloro-m-xylene [2C] 0.0296 ug/L 0.05000 59 30-150

**LCS Dup**

Aroclor 1016	0.76	0.10	ug/L	1.000	76	40-140	1	20
Aroclor 1260	0.89	0.10	ug/L	1.000	89	40-140	9	20

Surrogate: Decachlorobiphenyl 0.0495 ug/L 0.05000 99 30-150

Surrogate: Decachlorobiphenyl [2C] 0.0394 ug/L 0.05000 79 30-150

Surrogate: Tetrachloro-m-xylene 0.0276 ug/L 0.05000 55 30-150

Surrogate: Tetrachloro-m-xylene [2C] 0.0296 ug/L 0.05000 59 30-150

**Batch CK42453 - 3510C**

**Blank**

Aroclor 1016	ND	0.10	ug/L
Aroclor 1221	ND	0.10	ug/L
Aroclor 1232	ND	0.10	ug/L
Aroclor 1242	ND	0.10	ug/L
Aroclor 1248	ND	0.10	ug/L
Aroclor 1254	ND	0.10	ug/L
Aroclor 1260	ND	0.10	ug/L
Aroclor 1262	ND	0.10	ug/L
Aroclor 1268	ND	0.10	ug/L

Surrogate: Decachlorobiphenyl 0.0460 ug/L 0.05000 92 30-150

Surrogate: Decachlorobiphenyl [2C] 0.0366 ug/L 0.05000 73 30-150



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1411519

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8082A Polychlorinated Biphenyls (PCB)**

**Batch CK42453 - 3510C**

Surrogate: Tetrachloro-m-xylene	0.0235		ug/L	0.05000	47	30-150
Surrogate: Tetrachloro-m-xylene [2C]	0.0236		ug/L	0.05000	47	30-150

**LCS**

Aroclor 1016	0.82	0.10	ug/L	1.000	82	40-140
Aroclor 1260	0.84	0.10	ug/L	1.000	84	40-140

Surrogate: Decachlorobiphenyl	0.0464		ug/L	0.05000	93	30-150
Surrogate: Decachlorobiphenyl [2C]	0.0373		ug/L	0.05000	75	30-150
Surrogate: Tetrachloro-m-xylene	0.0283		ug/L	0.05000	57	30-150
Surrogate: Tetrachloro-m-xylene [2C]	0.0303		ug/L	0.05000	61	30-150

**LCS Dup**

Aroclor 1016	0.80	0.10	ug/L	1.000	80	40-140	3	20
Aroclor 1260	0.90	0.10	ug/L	1.000	90	40-140	7	20

Surrogate: Decachlorobiphenyl	0.0492		ug/L	0.05000	98	30-150
Surrogate: Decachlorobiphenyl [2C]	0.0396		ug/L	0.05000	79	30-150
Surrogate: Tetrachloro-m-xylene	0.0280		ug/L	0.05000	56	30-150
Surrogate: Tetrachloro-m-xylene [2C]	0.0302		ug/L	0.05000	60	30-150

**8260B Volatile Organic Compounds**

**Batch CK42545 - 5030B**

<b>Blank</b>										
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L							
1,1,1-Trichloroethane	ND	1.0	ug/L							
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L							
1,1,2-Trichloroethane	ND	1.0	ug/L							
1,1-Dichloroethane	ND	1.0	ug/L							
1,1-Dichloroethene	ND	1.0	ug/L							
1,1-Dichloropropene	ND	2.0	ug/L							
1,2,3-Trichlorobenzene	ND	1.0	ug/L							
1,2,3-Trichloropropane	ND	1.0	ug/L							
1,2,4-Trichlorobenzene	ND	1.0	ug/L							
1,2,4-Trimethylbenzene	ND	1.0	ug/L							
1,2-Dibromo-3-Chloropropane	ND	5.0	ug/L							
1,2-Dibromoethane	ND	1.0	ug/L							
1,2-Dichlorobenzene	ND	1.0	ug/L							
1,2-Dichloroethane	ND	1.0	ug/L							
1,2-Dichloropropane	ND	1.0	ug/L							
1,3,5-Trimethylbenzene	ND	1.0	ug/L							
1,3-Dichlorobenzene	ND	1.0	ug/L							
1,3-Dichloropropane	ND	1.0	ug/L							
1,4-Dichlorobenzene	ND	1.0	ug/L							
1,4-Dioxane - Screen	ND	500	ug/L							
2,2-Dichloropropane	ND	1.0	ug/L							



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1411519

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8260B Volatile Organic Compounds**

**Batch CK42545 - 5030B**

2-Butanone	ND	10.0	ug/L
2-Chlorotoluene	ND	1.0	ug/L
2-Hexanone	ND	10.0	ug/L
4-Chlorotoluene	ND	1.0	ug/L
4-Isopropyltoluene	ND	1.0	ug/L
4-Methyl-2-Pentanone	ND	10.0	ug/L
Acetone	ND	10.0	ug/L
Benzene	ND	1.0	ug/L
Bromobenzene	ND	2.0	ug/L
Bromochloromethane	ND	1.0	ug/L
Bromodichloromethane	ND	0.6	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
Carbon Disulfide	ND	1.0	ug/L
Carbon Tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroethane	ND	2.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	0.4	ug/L
Dibromochloromethane	ND	1.0	ug/L
Dibromomethane	ND	1.0	ug/L
Dichlorodifluoromethane	ND	2.0	ug/L
Diethyl Ether	ND	1.0	ug/L
Di-isopropyl ether	ND	1.0	ug/L
Ethyl tertiary-butyl ether	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Hexachlorobutadiene	ND	0.6	ug/L
Hexachloroethane	ND	1.0	ug/L
Isopropylbenzene	ND	1.0	ug/L
Methyl tert-Butyl Ether	ND	1.0	ug/L
Methylene Chloride	ND	2.0	ug/L
Naphthalene	ND	1.0	ug/L
n-Butylbenzene	ND	1.0	ug/L
n-Propylbenzene	ND	1.0	ug/L
sec-Butylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
tert-Butylbenzene	ND	1.0	ug/L
Tertiary-amyl methyl ether	ND	1.0	ug/L
Tetrachloroethene	ND	1.0	ug/L
Tetrahydrofuran	ND	5.0	ug/L
Toluene	ND	1.0	ug/L
trans-1,2-Dichloroethene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	0.4	ug/L



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1411519

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8260B Volatile Organic Compounds**

**Batch CK42545 - 5030B**

Trichloroethene	ND	1.0	ug/L							
Trichlorofluoromethane	ND	1.0	ug/L							
Vinyl Chloride	ND	1.0	ug/L							
Xylene O	ND	1.0	ug/L							
Xylene P,M	ND	2.0	ug/L							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	28.2		ug/L	25.00		113	70-130			
<i>Surrogate: 4-Bromofluorobenzene</i>	19.3		ug/L	25.00		77	70-130			
<i>Surrogate: Dibromofluoromethane</i>	27.7		ug/L	25.00		111	70-130			
<i>Surrogate: Toluene-d8</i>	22.2		ug/L	25.00		89	70-130			

**LCS**

1,1,1,2-Tetrachloroethane	10.7	ug/L	10.00	107	70-130
1,1,1-Trichloroethane	11.9	ug/L	10.00	119	70-130
1,1,2,2-Tetrachloroethane	10.0	ug/L	10.00	100	70-130
1,1,2-Trichloroethane	10.9	ug/L	10.00	109	70-130
1,1-Dichloroethane	10.6	ug/L	10.00	106	70-130
1,1-Dichloroethene	10.4	ug/L	10.00	104	70-130
1,1-Dichloropropene	10.7	ug/L	10.00	107	70-130
1,2,3-Trichlorobenzene	10.4	ug/L	10.00	104	70-130
1,2,3-Trichloropropane	9.8	ug/L	10.00	98	70-130
1,2,4-Trichlorobenzene	10.1	ug/L	10.00	101	70-130
1,2,4-Trimethylbenzene	9.7	ug/L	10.00	97	70-130
1,2-Dibromo-3-Chloropropane	9.8	ug/L	10.00	98	70-130
1,2-Dibromoethane	9.9	ug/L	10.00	99	70-130
1,2-Dichlorobenzene	10.0	ug/L	10.00	100	70-130
1,2-Dichloroethane	11.6	ug/L	10.00	116	70-130
1,2-Dichloropropane	10.4	ug/L	10.00	104	70-130
1,3,5-Trimethylbenzene	10.4	ug/L	10.00	104	70-130
1,3-Dichlorobenzene	10.3	ug/L	10.00	103	70-130
1,3-Dichloropropane	10.3	ug/L	10.00	103	70-130
1,4-Dichlorobenzene	10.2	ug/L	10.00	102	70-130
1,4-Dioxane - Screen	186	ug/L	200.0	93	0-332
2,2-Dichloropropane	11.4	ug/L	10.00	114	70-130
2-Butanone	52.9	ug/L	50.00	106	70-130
2-Chlorotoluene	9.8	ug/L	10.00	98	70-130
2-Hexanone	47.0	ug/L	50.00	94	70-130
4-Chlorotoluene	10.2	ug/L	10.00	102	70-130
4-Isopropyltoluene	9.9	ug/L	10.00	99	70-130
4-Methyl-2-Pentanone	50.6	ug/L	50.00	101	70-130
Acetone	51.0	ug/L	50.00	102	70-130
Benzene	11.4	ug/L	10.00	114	70-130
Bromobenzene	10.4	ug/L	10.00	104	70-130
Bromochloromethane	11.8	ug/L	10.00	118	70-130
Bromodichloromethane	12.0	ug/L	10.00	120	70-130
Bromoform	11.1	ug/L	10.00	111	70-130
Bromomethane	13.9	ug/L	10.00	139	70-130

B+



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1411519

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8260B Volatile Organic Compounds**

**Batch CK42545 - 5030B**

Carbon Disulfide	10.3		ug/L	10.00	103	70-130				
Carbon Tetrachloride	12.1		ug/L	10.00	121	70-130				
Chlorobenzene	10.2		ug/L	10.00	102	70-130				
Chloroethane	11.1		ug/L	10.00	111	70-130				
Chloroform	11.2		ug/L	10.00	112	70-130				
Chloromethane	11.6		ug/L	10.00	116	70-130				
cis-1,2-Dichloroethene	11.0		ug/L	10.00	110	70-130				
cis-1,3-Dichloropropene	9.6		ug/L	10.00	96	70-130				
Dibromochloromethane	9.8		ug/L	10.00	98	70-130				
Dibromomethane	11.4		ug/L	10.00	114	70-130				
Dichlorodifluoromethane	13.2		ug/L	10.00	132	70-130				B+
Diethyl Ether	10.0		ug/L	10.00	100	70-130				
Di-isopropyl ether	9.2		ug/L	10.00	92	70-130				
Ethyl tertiary-butyl ether	9.2		ug/L	10.00	92	70-130				
Ethylbenzene	10.1		ug/L	10.00	101	70-130				
Hexachlorobutadiene	10.7		ug/L	10.00	107	70-130				
Hexachloroethane	11.6		ug/L	10.00	116	70-130				
Isopropylbenzene	9.5		ug/L	10.00	95	70-130				
Methyl tert-Butyl Ether	10.1		ug/L	10.00	101	70-130				
Methylene Chloride	10.9		ug/L	10.00	109	70-130				
Naphthalene	7.4		ug/L	10.00	74	70-130				
n-Butylbenzene	10.0		ug/L	10.00	100	70-130				
n-Propylbenzene	9.5		ug/L	10.00	95	70-130				
sec-Butylbenzene	9.9		ug/L	10.00	99	70-130				
Styrene	9.4		ug/L	10.00	94	70-130				
tert-Butylbenzene	9.6		ug/L	10.00	96	70-130				
Tertiary-amyl methyl ether	9.2		ug/L	10.00	92	70-130				
Tetrachloroethene	10.0		ug/L	10.00	100	70-130				
Tetrahydrofuran	9.3		ug/L	10.00	93	70-130				
Toluene	11.3		ug/L	10.00	113	70-130				
trans-1,2-Dichloroethene	10.5		ug/L	10.00	105	70-130				
trans-1,3-Dichloropropene	9.2		ug/L	10.00	92	70-130				
Trichloroethene	10.6		ug/L	10.00	106	70-130				
Trichlorofluoromethane	11.3		ug/L	10.00	113	70-130				
Vinyl Chloride	13.0		ug/L	10.00	130	70-130				
Xylene O	10.2		ug/L	10.00	102	70-130				
Xylene P,M	20.6		ug/L	20.00	103	70-130				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	25.1		ug/L	25.00	101	70-130				
<i>Surrogate: 4-Bromofluorobenzene</i>	20.8		ug/L	25.00	83	70-130				
<i>Surrogate: Dibromofluoromethane</i>	26.5		ug/L	25.00	106	70-130				
<i>Surrogate: Toluene-d8</i>	21.5		ug/L	25.00	86	70-130				

**LCS Dup**

1,1,1,2-Tetrachloroethane	11.0		ug/L	10.00	110	70-130	3	25
1,1,1-Trichloroethane	12.6		ug/L	10.00	126	70-130	6	25
1,1,2,2-Tetrachloroethane	10.5		ug/L	10.00	105	70-130	5	25



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1411519

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8260B Volatile Organic Compounds**

**Batch CK42545 - 5030B**

1,1,2-Trichloroethane	11.8		ug/L	10.00	118	70-130	8	25		
1,1-Dichloroethane	11.2		ug/L	10.00	112	70-130	5	25		
1,1-Dichloroethene	11.0		ug/L	10.00	110	70-130	5	25		
1,1-Dichloropropene	11.3		ug/L	10.00	113	70-130	6	25		
1,2,3-Trichlorobenzene	11.7		ug/L	10.00	117	70-130	12	25		
1,2,3-Trichloropropane	10.3		ug/L	10.00	103	70-130	5	25		
1,2,4-Trichlorobenzene	11.3		ug/L	10.00	113	70-130	12	25		
1,2,4-Trimethylbenzene	10.4		ug/L	10.00	104	70-130	8	25		
1,2-Dibromo-3-Chloropropane	10.7		ug/L	10.00	107	70-130	9	25		
1,2-Dibromoethane	10.7		ug/L	10.00	107	70-130	8	25		
1,2-Dichlorobenzene	10.9		ug/L	10.00	109	70-130	8	25		
1,2-Dichloroethane	12.2		ug/L	10.00	122	70-130	5	25		
1,2-Dichloropropane	10.9		ug/L	10.00	109	70-130	4	25		
1,3,5-Trimethylbenzene	11.3		ug/L	10.00	113	70-130	8	25		
1,3-Dichlorobenzene	10.9		ug/L	10.00	109	70-130	5	25		
1,3-Dichloropropane	11.2		ug/L	10.00	112	70-130	8	25		
1,4-Dichlorobenzene	11.5		ug/L	10.00	115	70-130	11	25		
1,4-Dioxane - Screen	216		ug/L	200.0	108	0-332	15	200		
2,2-Dichloropropane	12.0		ug/L	10.00	120	70-130	5	25		
2-Butanone	56.4		ug/L	50.00	113	70-130	6	25		
2-Chlorotoluene	10.5		ug/L	10.00	105	70-130	8	25		
2-Hexanone	52.3		ug/L	50.00	105	70-130	11	25		
4-Chlorotoluene	10.8		ug/L	10.00	108	70-130	5	25		
4-Isopropyltoluene	10.9		ug/L	10.00	109	70-130	10	25		
4-Methyl-2-Pentanone	55.1		ug/L	50.00	110	70-130	9	25		
Acetone	54.2		ug/L	50.00	108	70-130	6	25		
Benzene	11.9		ug/L	10.00	119	70-130	4	25		
Bromobenzene	11.1		ug/L	10.00	111	70-130	7	25		
Bromochloromethane	12.5		ug/L	10.00	125	70-130	5	25		
Bromodichloromethane	12.8		ug/L	10.00	128	70-130	6	25		
Bromoform	11.8		ug/L	10.00	118	70-130	6	25		
Bromomethane	12.0		ug/L	10.00	120	70-130	15	25		
Carbon Disulfide	11.0		ug/L	10.00	110	70-130	7	25		
Carbon Tetrachloride	12.9		ug/L	10.00	129	70-130	6	25		
Chlorobenzene	10.9		ug/L	10.00	109	70-130	7	25		
Chloroethane	11.9		ug/L	10.00	119	70-130	7	25		
Chloroform	11.8		ug/L	10.00	118	70-130	5	25		
Chloromethane	12.6		ug/L	10.00	126	70-130	8	25		
cis-1,2-Dichloroethene	11.5		ug/L	10.00	115	70-130	5	25		
cis-1,3-Dichloropropene	10.3		ug/L	10.00	103	70-130	8	25		
Dibromochloromethane	10.4		ug/L	10.00	104	70-130	6	25		
Dibromomethane	12.2		ug/L	10.00	122	70-130	7	25		
Dichlorodifluoromethane	14.0		ug/L	10.00	140	70-130	6	25	B+	
Diethyl Ether	10.5		ug/L	10.00	105	70-130	4	25		
Di-isopropyl ether	9.8		ug/L	10.00	98	70-130	6	25		



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1411519

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8260B Volatile Organic Compounds**

**Batch CK42545 - 5030B**

Ethyl tertiary-butyl ether	9.8		ug/L	10.00	98	70-130	7	25		
Ethylbenzene	10.9		ug/L	10.00	109	70-130	7	25		
Hexachlorobutadiene	11.7		ug/L	10.00	117	70-130	8	25		
Hexachloroethane	12.3		ug/L	10.00	123	70-130	6	25		
Isopropylbenzene	10.3		ug/L	10.00	103	70-130	8	25		
Methyl tert-Butyl Ether	10.9		ug/L	10.00	109	70-130	8	25		
Methylene Chloride	11.7		ug/L	10.00	117	70-130	7	25		
Naphthalene	9.0		ug/L	10.00	90	70-130	19	25		
n-Butylbenzene	10.9		ug/L	10.00	109	70-130	9	25		
n-Propylbenzene	10.4		ug/L	10.00	104	70-130	8	25		
sec-Butylbenzene	10.9		ug/L	10.00	109	70-130	10	25		
Styrene	10.2		ug/L	10.00	102	70-130	8	25		
tert-Butylbenzene	10.4		ug/L	10.00	104	70-130	8	25		
Tertiary-amyl methyl ether	10.0		ug/L	10.00	100	70-130	8	25		
Tetrachloroethene	10.9		ug/L	10.00	109	70-130	9	25		
Tetrahydrofuran	9.6		ug/L	10.00	96	70-130	3	25		
Toluene	12.0		ug/L	10.00	120	70-130	6	25		
trans-1,2-Dichloroethene	10.8		ug/L	10.00	108	70-130	3	25		
trans-1,3-Dichloropropene	9.7		ug/L	10.00	97	70-130	6	25		
Trichloroethene	11.6		ug/L	10.00	116	70-130	9	25		
Trichlorofluoromethane	12.0		ug/L	10.00	120	70-130	6	25		
Vinyl Chloride	14.2		ug/L	10.00	142	70-130	9	25	B+	
Xylene O	11.1		ug/L	10.00	111	70-130	8	25		
Xylene P,M	22.3		ug/L	20.00	112	70-130	8	25		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	25.5		ug/L	25.00	102	70-130				
<i>Surrogate: 4-Bromofluorobenzene</i>	21.4		ug/L	25.00	86	70-130				
<i>Surrogate: Dibromofluoromethane</i>	26.8		ug/L	25.00	107	70-130				
<i>Surrogate: Toluene-d8</i>	21.9		ug/L	25.00	88	70-130				

**Batch CK42647 - 5030B**

Blank			
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloropropene	ND	2.0	ug/L
1,2,3-Trichlorobenzene	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
1,2,4-Trichlorobenzene	ND	1.0	ug/L
1,2,4-Trimethylbenzene	ND	1.0	ug/L
1,2-Dibromo-3-Chloropropane	ND	5.0	ug/L
1,2-Dibromoethane	ND	1.0	ug/L
1,2-Dichlorobenzene	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L



**CERTIFICATE OF ANALYSIS**

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**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8260B Volatile Organic Compounds**

**Batch CK42647 - 5030B**

1,2-Dichloropropane	ND	1.0	ug/L
1,3,5-Trimethylbenzene	ND	1.0	ug/L
1,3-Dichlorobenzene	ND	1.0	ug/L
1,3-Dichloropropane	ND	1.0	ug/L
1,4-Dichlorobenzene	ND	1.0	ug/L
1,4-Dioxane - Screen	ND	500	ug/L
2,2-Dichloropropane	ND	1.0	ug/L
2-Butanone	ND	10.0	ug/L
2-Chlorotoluene	ND	1.0	ug/L
2-Hexanone	ND	10.0	ug/L
4-Chlorotoluene	ND	1.0	ug/L
4-Isopropyltoluene	ND	1.0	ug/L
4-Methyl-2-Pentanone	ND	10.0	ug/L
Acetone	ND	10.0	ug/L
Benzene	ND	1.0	ug/L
Bromobenzene	ND	2.0	ug/L
Bromochloromethane	ND	1.0	ug/L
Bromodichloromethane	ND	0.6	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
Carbon Disulfide	ND	1.0	ug/L
Carbon Tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroethane	ND	2.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	0.4	ug/L
Dibromochloromethane	ND	1.0	ug/L
Dibromomethane	ND	1.0	ug/L
Dichlorodifluoromethane	ND	2.0	ug/L
Diethyl Ether	ND	1.0	ug/L
Di-isopropyl ether	ND	1.0	ug/L
Ethyl tertiary-butyl ether	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Hexachlorobutadiene	ND	0.6	ug/L
Hexachloroethane	ND	1.0	ug/L
Isopropylbenzene	ND	1.0	ug/L
Methyl tert-Butyl Ether	ND	1.0	ug/L
Methylene Chloride	ND	2.0	ug/L
Naphthalene	ND	1.0	ug/L
n-Butylbenzene	ND	1.0	ug/L
n-Propylbenzene	ND	1.0	ug/L
sec-Butylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L



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**8260B Volatile Organic Compounds**

**Batch CK42647 - 5030B**

tert-Butylbenzene	ND	1.0	ug/L							
Tertiary-amyl methyl ether	ND	1.0	ug/L							
Tetrachloroethene	ND	1.0	ug/L							
Tetrahydrofuran	ND	5.0	ug/L							
Toluene	ND	1.0	ug/L							
trans-1,2-Dichloroethene	ND	1.0	ug/L							
trans-1,3-Dichloropropene	ND	0.4	ug/L							
Trichloroethene	ND	1.0	ug/L							
Trichlorofluoromethane	ND	1.0	ug/L							
Vinyl Chloride	ND	1.0	ug/L							
Xylene O	ND	1.0	ug/L							
Xylene P,M	ND	2.0	ug/L							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	25.8		ug/L	25.00		103	70-130			
<i>Surrogate: 4-Bromofluorobenzene</i>	21.1		ug/L	25.00		84	70-130			
<i>Surrogate: Dibromofluoromethane</i>	25.5		ug/L	25.00		102	70-130			
<i>Surrogate: Toluene-d8</i>	22.3		ug/L	25.00		89	70-130			

**LCS**

1,1,1,2-Tetrachloroethane	10.7		ug/L	10.00		107	70-130			
1,1,1-Trichloroethane	11.2		ug/L	10.00		112	70-130			
1,1,2,2-Tetrachloroethane	10.2		ug/L	10.00		102	70-130			
1,1,2-Trichloroethane	10.7		ug/L	10.00		107	70-130			
1,1-Dichloroethane	10.3		ug/L	10.00		103	70-130			
1,1-Dichloroethene	10.5		ug/L	10.00		105	70-130			
1,1-Dichloropropene	10.8		ug/L	10.00		108	70-130			
1,2,3-Trichlorobenzene	9.7		ug/L	10.00		97	70-130			
1,2,3-Trichloropropane	10.0		ug/L	10.00		100	70-130			
1,2,4-Trichlorobenzene	10.4		ug/L	10.00		104	70-130			
1,2,4-Trimethylbenzene	11.1		ug/L	10.00		111	70-130			
1,2-Dibromo-3-Chloropropane	10.1		ug/L	10.00		101	70-130			
1,2-Dibromoethane	10.4		ug/L	10.00		104	70-130			
1,2-Dichlorobenzene	10.8		ug/L	10.00		108	70-130			
1,2-Dichloroethane	10.8		ug/L	10.00		108	70-130			
1,2-Dichloropropane	10.4		ug/L	10.00		104	70-130			
1,3,5-Trimethylbenzene	11.8		ug/L	10.00		118	70-130			
1,3-Dichlorobenzene	10.8		ug/L	10.00		108	70-130			
1,3-Dichloropropane	10.7		ug/L	10.00		107	70-130			
1,4-Dichlorobenzene	10.9		ug/L	10.00		109	70-130			
1,4-Dioxane - Screen	224		ug/L	200.0		112	0-332			
2,2-Dichloropropane	11.1		ug/L	10.00		111	70-130			
2-Butanone	52.7		ug/L	50.00		105	70-130			
2-Chlorotoluene	10.4		ug/L	10.00		104	70-130			
2-Hexanone	52.0		ug/L	50.00		104	70-130			
4-Chlorotoluene	10.9		ug/L	10.00		109	70-130			
4-Isopropyltoluene	11.1		ug/L	10.00		111	70-130			
4-Methyl-2-Pentanone	54.1		ug/L	50.00		108	70-130			



**CERTIFICATE OF ANALYSIS**

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**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8260B Volatile Organic Compounds**

**Batch CK42647 - 5030B**

Acetone	48.0		ug/L	50.00	96	70-130				
Benzene	11.0		ug/L	10.00	110	70-130				
Bromobenzene	11.0		ug/L	10.00	110	70-130				
Bromochloromethane	11.8		ug/L	10.00	118	70-130				
Bromodichloromethane	11.3		ug/L	10.00	113	70-130				
Bromoform	11.3		ug/L	10.00	113	70-130				
Bromomethane	10.1		ug/L	10.00	101	70-130				
Carbon Disulfide	9.9		ug/L	10.00	99	70-130				
Carbon Tetrachloride	12.2		ug/L	10.00	122	70-130				
Chlorobenzene	10.7		ug/L	10.00	107	70-130				
Chloroethane	10.8		ug/L	10.00	108	70-130				
Chloroform	10.5		ug/L	10.00	105	70-130				
Chloromethane	11.0		ug/L	10.00	110	70-130				
cis-1,2-Dichloroethene	11.0		ug/L	10.00	110	70-130				
cis-1,3-Dichloropropene	9.8		ug/L	10.00	98	70-130				
Dibromochloromethane	10.1		ug/L	10.00	101	70-130				
Dibromomethane	11.1		ug/L	10.00	111	70-130				
Dichlorodifluoromethane	11.7		ug/L	10.00	117	70-130				
Diethyl Ether	10.6		ug/L	10.00	106	70-130				
Di-isopropyl ether	9.9		ug/L	10.00	99	70-130				
Ethyl tertiary-butyl ether	11.9		ug/L	10.00	119	70-130				
Ethylbenzene	11.1		ug/L	10.00	111	70-130				
Hexachlorobutadiene	8.7		ug/L	10.00	87	70-130				
Hexachloroethane	12.3		ug/L	10.00	123	70-130				
Isopropylbenzene	10.8		ug/L	10.00	108	70-130				
Methyl tert-Butyl Ether	12.0		ug/L	10.00	120	70-130				
Methylene Chloride	11.3		ug/L	10.00	113	70-130				
Naphthalene	8.6		ug/L	10.00	86	70-130				
n-Butylbenzene	10.8		ug/L	10.00	108	70-130				
n-Propylbenzene	10.9		ug/L	10.00	109	70-130				
sec-Butylbenzene	11.1		ug/L	10.00	111	70-130				
Styrene	10.6		ug/L	10.00	106	70-130				
tert-Butylbenzene	11.1		ug/L	10.00	111	70-130				
Tertiary-amyl methyl ether	13.1		ug/L	10.00	131	70-130				B+
Tetrachloroethene	10.8		ug/L	10.00	108	70-130				
Tetrahydrofuran	9.6		ug/L	10.00	96	70-130				
Toluene	11.3		ug/L	10.00	113	70-130				
trans-1,2-Dichloroethene	10.6		ug/L	10.00	106	70-130				
trans-1,3-Dichloropropene	9.4		ug/L	10.00	94	70-130				
Trichloroethene	11.0		ug/L	10.00	110	70-130				
Trichlorofluoromethane	10.6		ug/L	10.00	106	70-130				
Vinyl Chloride	12.4		ug/L	10.00	124	70-130				
Xylene O	11.1		ug/L	10.00	111	70-130				
Xylene P,M	22.4		ug/L	20.00	112	70-130				
Surrogate: 1,2-Dichloroethane-d4	18.6		ug/L	25.00	74	70-130				



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1411519

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8260B Volatile Organic Compounds**

**Batch CK42647 - 5030B**

Surrogate: 4-Bromofluorobenzene

17.6 ug/L 25.00 70 70-130

Surrogate: Dibromofluoromethane

20.1 ug/L 25.00 80 70-130

Surrogate: Toluene-d8

18.2 ug/L 25.00 73 70-130

**LCS Dup**

1,1,1,2-Tetrachloroethane	10.0	ug/L	10.00		100	70-130	7	25		
1,1,1-Trichloroethane	11.0	ug/L	10.00		110	70-130	2	25		
1,1,2,2-Tetrachloroethane	9.2	ug/L	10.00		92	70-130	9	25		
1,1,2-Trichloroethane	10.2	ug/L	10.00		102	70-130	5	25		
1,1-Dichloroethane	10.0	ug/L	10.00		100	70-130	3	25		
1,1-Dichloroethene	10.1	ug/L	10.00		101	70-130	3	25		
1,1-Dichloropropene	10.6	ug/L	10.00		106	70-130	2	25		
1,2,3-Trichlorobenzene	8.5	ug/L	10.00		85	70-130	13	25		
1,2,3-Trichloropropane	9.2	ug/L	10.00		92	70-130	9	25		
1,2,4-Trichlorobenzene	9.3	ug/L	10.00		93	70-130	11	25		
1,2,4-Trimethylbenzene	10.4	ug/L	10.00		104	70-130	7	25		
1,2-Dibromo-3-Chloropropane	9.6	ug/L	10.00		96	70-130	5	25		
1,2-Dibromoethane	9.4	ug/L	10.00		94	70-130	10	25		
1,2-Dichlorobenzene	10.0	ug/L	10.00		100	70-130	8	25		
1,2-Dichloroethane	10.5	ug/L	10.00		105	70-130	3	25		
1,2-Dichloropropane	9.9	ug/L	10.00		99	70-130	5	25		
1,3,5-Trimethylbenzene	11.1	ug/L	10.00		111	70-130	6	25		
1,3-Dichlorobenzene	9.9	ug/L	10.00		99	70-130	8	25		
1,3-Dichloropropane	9.5	ug/L	10.00		95	70-130	11	25		
1,4-Dichlorobenzene	9.9	ug/L	10.00		99	70-130	9	25		
1,4-Dioxane - Screen	213	ug/L	200.0		107	0-332	5	200		
2,2-Dichloropropane	11.1	ug/L	10.00		111	70-130	0.09	25		
2-Butanone	54.1	ug/L	50.00		108	70-130	3	25		
2-Chlorotoluene	9.7	ug/L	10.00		97	70-130	7	25		
2-Hexanone	52.2	ug/L	50.00		104	70-130	0.3	25		
4-Chlorotoluene	10.2	ug/L	10.00		102	70-130	7	25		
4-Isopropyltoluene	10.1	ug/L	10.00		101	70-130	9	25		
4-Methyl-2-Pentanone	49.9	ug/L	50.00		100	70-130	8	25		
Acetone	59.4	ug/L	50.00		119	70-130	21	25		
Benzene	10.6	ug/L	10.00		106	70-130	3	25		
Bromobenzene	10.3	ug/L	10.00		103	70-130	7	25		
Bromochloromethane	11.5	ug/L	10.00		115	70-130	3	25		
Bromodichloromethane	10.9	ug/L	10.00		109	70-130	3	25		
Bromoform	10.4	ug/L	10.00		104	70-130	8	25		
Bromomethane	10.0	ug/L	10.00		100	70-130	1	25		
Carbon Disulfide	9.7	ug/L	10.00		97	70-130	3	25		
Carbon Tetrachloride	11.9	ug/L	10.00		119	70-130	3	25		
Chlorobenzene	9.6	ug/L	10.00		96	70-130	11	25		
Chloroethane	8.0	ug/L	10.00		80	70-130	30	25		
Chloroform	10.2	ug/L	10.00		102	70-130	3	25		D+



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1411519

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8260B Volatile Organic Compounds**

**Batch CK42647 - 5030B**

Chloromethane	10.8		ug/L	10.00	108	70-130	2	25		
cis-1,2-Dichloroethene	10.7		ug/L	10.00	107	70-130	3	25		
cis-1,3-Dichloropropene	9.6		ug/L	10.00	96	70-130	3	25		
Dibromochloromethane	9.1		ug/L	10.00	91	70-130	10	25		
Dibromomethane	10.6		ug/L	10.00	106	70-130	5	25		
Dichlorodifluoromethane	11.4		ug/L	10.00	114	70-130	2	25		
Diethyl Ether	10.7		ug/L	10.00	107	70-130	0.6	25		
Di-isopropyl ether	9.6		ug/L	10.00	96	70-130	4	25		
Ethyl tertiary-butyl ether	11.4		ug/L	10.00	114	70-130	5	25		
Ethylbenzene	10.1		ug/L	10.00	101	70-130	9	25		
Hexachlorobutadiene	8.0		ug/L	10.00	80	70-130	9	25		
Hexachloroethane	12.2		ug/L	10.00	122	70-130	0.7	25		
Isopropylbenzene	10.2		ug/L	10.00	102	70-130	6	25		
Methyl tert-Butyl Ether	11.4		ug/L	10.00	114	70-130	5	25		
Methylene Chloride	11.6		ug/L	10.00	116	70-130	2	25		
Naphthalene	7.6		ug/L	10.00	76	70-130	13	25		
n-Butylbenzene	9.9		ug/L	10.00	99	70-130	9	25		
n-Propylbenzene	10.1		ug/L	10.00	101	70-130	7	25		
sec-Butylbenzene	10.0		ug/L	10.00	100	70-130	10	25		
Styrene	10.0		ug/L	10.00	100	70-130	5	25		
tert-Butylbenzene	10.3		ug/L	10.00	103	70-130	7	25		
Tertiary-amyl methyl ether	12.5		ug/L	10.00	125	70-130	4	25		
Tetrachloroethene	9.3		ug/L	10.00	93	70-130	16	25		
Tetrahydrofuran	9.8		ug/L	10.00	98	70-130	3	25		
Toluene	10.9		ug/L	10.00	109	70-130	3	25		
trans-1,2-Dichloroethene	10.3		ug/L	10.00	103	70-130	3	25		
trans-1,3-Dichloropropene	9.1		ug/L	10.00	91	70-130	3	25		
Trichloroethene	10.2		ug/L	10.00	102	70-130	7	25		
Trichlorofluoromethane	10.2		ug/L	10.00	102	70-130	4	25		
Vinyl Chloride	12.3		ug/L	10.00	123	70-130	0.7	25		
Xylene O	10.0		ug/L	10.00	100	70-130	11	25		
Xylene P,M	20.2		ug/L	20.00	101	70-130	10	25		
Surrogate: 1,2-Dichloroethane-d4	25.8		ug/L	25.00	103	70-130				
Surrogate: 4-Bromofluorobenzene	21.1		ug/L	25.00	84	70-130				
Surrogate: Dibromofluoromethane	27.7		ug/L	25.00	111	70-130				
Surrogate: Toluene-d8	23.1		ug/L	25.00	92	70-130				



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1411519

**Notes and Definitions**

U	Analyte included in the analysis, but not detected
D+	Relative percent difference for duplicate is outside of criteria (D+).
D	Diluted.
B+	Blank Spike recovery is above upper control limit (B+).
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report



### **CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Grant Gear

ESS Laboratory Work Order: 1411519

### **ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS**

#### **ENVIRONMENTAL**

Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP)  
A2LA Accredited: Testing Cert# 2864.01  
<http://www.a2la.org/scopepdf/2864-01.pdf>

Rhode Island Potable and Non Potable Water: LAI00179  
<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750  
[http://www.ct.gov/dph/lib/dph/environmental\\_health/environmental\\_laboratories/pdf/OutofStateCommercialLaboratories.pdf](http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf)

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI0002  
<http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls>

Massachusetts Potable and Non Potable Water: M-RI002  
<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424  
<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313  
<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006  
[http://datamine2.state.nj.us/DEP\\_OPRA/OpraMain/pi\\_main?mode=pi\\_by\\_site&sort\\_order=PI\\_NAMEA&Select+a+Site:=58715](http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715)

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752  
[http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory\\_accreditation\\_program/590095](http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095)

#### **CHEMISTRY**

A2LA Accredited: Testing Cert # 2864.01  
Lead in Paint, Phthalates, Lead in Children's Metals Products (Including Jewelry)  
<http://www.A2LA.org/dirsearchnew/newsearch.cfm>

CPSC ID# 1141  
Lead Paint, Lead in Children's Metals Jewelry  
<http://www.cpsc.gov/cgi-bin/labapplist.aspx>

**Sample and Cooler Receipt Checklist**

Client: GZA GeoEnvironmental, Inc.  
 Client Project ID: \_\_\_\_\_  
 Shipped/Delivered Via: ESS Courier

ESS Project ID: 14110519  
 Date Project Due: 12/1/14  
 Days For Project: 5 Day

**Items to be checked upon receipt:**

- |  |                               |   |  |
|--|-------------------------------|---|--|
| 1. Air Bill Manifest Present?          | <input type="checkbox"/> * No | 10. Are the samples properly preserved?   | <input type="checkbox"/> Yes   |
| Air No.:                               |                               | 11. Proper sample containers used?        | <input type="checkbox"/> Yes   |
| 2. Were Custody Seals Present?         | <input type="checkbox"/> Yes  | 12. Any air bubbles in the VOA vials?     | <input type="checkbox"/> No  |
| 3. Were Custody Seals Intact?          | <input type="checkbox"/> Yes  | 13. Holding times exceeded?               | <input type="checkbox"/> No  |
| 4. Is Radiation count < 100 CPM?       | <input type="checkbox"/> Yes  | 14. Sufficient sample volumes?            | <input type="checkbox"/> Yes   |
| 5. Is a cooler present?                | <input type="checkbox"/> Yes  | 15. Any Subcontracting needed?            | <input type="checkbox"/> No  |
| Cooler Temp: <u>2.0</u>                |                               | 16. Are ESS labels on correct containers? | <input checked="" type="checkbox"/> Yes   <input type="checkbox"/> No            |
| Iced With: <u>Ice</u>                  |                               | 17. Were samples received intact?         | <input checked="" type="checkbox"/> Yes   <input checked="" type="checkbox"/> No |
| 6. Was COC included with samples?      | <input type="checkbox"/> Yes  | ESS Sample IDs: _____                     |  |
| 7. Was COC signed and dated by client? | <input type="checkbox"/> Yes  | Sub Lab: _____                            |  |
| 8. Does the COC match the sample       | <input type="checkbox"/> Yes  | Analysis: _____                           |  |
| 9. Is COC complete and correct?        | <input type="checkbox"/> Yes  | TAT: _____                                |  |

18. Was there need to call project manager to discuss status? If yes, please explain.

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Who was called?: \_\_\_\_\_

By whom? \_\_\_\_\_

Sample Number	Properly Preserved	Container Type	# of Containers	Preservative
1	Yes	1 L Glass	1	NP
1	Yes	40 ml - VOA	3	HCL
2	Yes	1 L Glass	1	NP
2	Yes	40 ml - VOA	3	HCL
3	Yes	1 L Glass	1	NP
3	Yes	40 ml - VOA	3	HCL
4	Yes	1 L Glass	1	NP
4	Yes	40 ml - VOA	3	HCL
5	Yes	1 L Glass	1	NP
5	Yes	40 ml - VOA	3	HCL
6	Yes	1 L Glass	1	NP
6	Yes	40 ml - VOA	3	HCL
7	Yes	1 L Glass	1	NP
7	Yes	40 ml - VOA	3	HCL
8	Yes	1 L Glass	1	NP
9	Yes	1 L Glass	1	NP
10	Yes	1 L Glass	1	NP
11	Yes	1 L Glass	1	NP
12	Yes	40 ml - VOA	3	HCL

Completed By: m - Mud

Date/Time: 11/24/14 16:08

Reviewed By: MH

Date/Time: 11/24/14 16:06

# ESS Laboratory

## *Division of Thielsch Engineering, Inc.*

185 Frances Avenue, Cranston, RI 02910-2211  
Tel. (401) 461-7181 Fax (401) 461-4486  
[www.esslaboratory.com](http://www.esslaboratory.com)

## **CHAIN OF CUSTODY**

Page 1 of 2

Turn Time <input checked="" type="checkbox"/> Standard <input type="checkbox"/> Other _____ If faster than 5 days, prior approval by laboratory is required # _____	Reporting Limits	ESS LAB PROJECT ID <b>1411519</b>
State where samples were collected from: <b>MA RI CT NH NJ NY ME</b> Other _____	Electronic Deliverable	Yes <input checked="" type="checkbox"/> No _____
Is this project for any of the following: <b>MA-MCP Navy USACE</b> Other _____		Format: Excel <input type="checkbox"/> Access <input type="checkbox"/> PDF <input checked="" type="checkbox"/> Other _____

Co. Name GZA			Project # 18605.00	Project Name (20 Char. or less) Grant Gear		Circle and/or Write Required Analysis					
Contact Person Bill Davis	Address 249 Vanderbilt Ave		State MA	Zip 02062	PO#						
City Norwood						Number of Containers					
Telephone # 781-983-1357	Fax #	Email Address wdavis@929.com				Type of Containers					
ESS LAB Sample #	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)		Pres Code	8260 B	624	524.2
1	11/21/14	1058am	X	X	GW	Mw-1A		HCL	VOC		
2		1058am	X	X		Duplicate			8021	8015	VPH <i>MTBE/BTEX GRO</i>
3		1143 am	X	X		ME-17(34)			8100	8015	DRO
4		115 pm	X	X		ME-10			EPH	EPH	<i>EPH</i>
5		1240 pm	X	X		Mw-EN-11			8081	8082	<i>PAHs &amp; Dieldrin</i>
6		1241 pm	X	X		B-28			8270	625	PAH <i>PCBs</i>
7		215 pm	X	X		Mw-3AR			VOC		8270
12		1000 am	X	X	air	Trip Blank			RCRAS	PP13	TAL23
									RCRAS	PP13	NBC7
									RCRAS	PP13	MCP-METALS (13)
									RCRAS	PP13	<i>MCP-Hg</i>

Container Type: P-Poly G-Glass S-Sterile V-VOA Matrix: S-Soil SD-Solid D-Sludge WW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters

Cooler Present \_\_\_\_\_ Yes \_\_\_\_\_ No Internal Use Only Preservation Code 1- NP, 2- HC1, 3- H<sub>2</sub>SO<sub>4</sub>, 4- HNO<sub>3</sub>, 5- NaOH, 6- MeOH, 7- Ascorbic Acid, 8- ZnAct, 9- \_\_\_\_\_

Seals Intact Yes No NA:  pickup Sampled by: *R.M. DeWitt*

Comments: Samples collected using low-flow methods

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
	11/21/14 100pm		11/24/14 1435		11/24/14 1544		11/24/14 1605
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

\*By circling MA-MCP, client acknowledges samples were collected in accordance with MADEP CAM VII A

Please fax all changes to Chain of Custody in writing.

1 (White) Lab Copy 2 (Yellow) Client Receipt

10/00/05 B

# ESS Laboratory

Division of Thielsch Engineering, Inc.

185 Frances Avenue, Cranston, RI 02910-2211

Tel. (401) 461-7181 Fax (401) 461-4486

[www.esslaboratory.com](http://www.esslaboratory.com)

# CHAIN OF CUSTODY

Page 2 of 2

Turn Time	<input checked="" type="checkbox"/> Standard	Other _____	Reporting Limits	ESS LAB PROJECT ID
If faster than 5 days, prior approval by laboratory is required # _____				
State where samples were collected from: MA RI CT NH NJ NY ME Other _____				
Is this project for any of the following: MA-MCP Navy USACE Other _____				
			Electronic Deliverable Format: Excel <input type="checkbox"/> Access <input type="checkbox"/> PDF <input checked="" type="checkbox"/> Other	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Co. Name <i>GZA</i>			Project # <i>18605.09</i>	Project Name (20 Char. or less) <i>Grant Gear</i>		Number of Containers	Circle and/or Write Required Analysis										
Contact Person <i>Bill Davis</i>			Address <i>249 Wunderbiff Ave</i>		Type of Containers		8260	624	524.2	VPH w/Targets	8021	8015	8015	EPH w/o PAHs	8100	8082	6082
City <i>Norwood</i> State <i>Ma</i>			Zip <i>02062</i>	PO#					DIRO	DIRO	DIRO	4 Diesel	PCB	Pesticides	6082	6082	PCB
Telephone # <i>781-983-7352</i>		Fax #	Email Address <i>wolavitz@9291.com</i>														
ESS LAB Sample#	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)		Pres Code									
1	11/21/14	951am	X	S		SED-1			1	1	A						
2		1003am	X	S		SED- Duplicate			1	1							
3		1016am	X	S		SED-2			1	1							
4		1020am	X	S		SED-3			1	1							
5		950am	X	Sw		Sw-1			1	1							
6		1002am	X	Sw		Sw- Duplicate			1	1							
7		1015am	X	Sw		Sw-2			1	1							
8		1020am		Sw		Sw-3			1	1							

Container Type: P-Poly G-Glass S-Sterile V-VOA Matrix: S-Soil SD-Solid D-Sludge WW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters

Cooler Present	<input checked="" type="checkbox"/> Yes	No	Internal Use Only	Preservation Code: 1- NP, 2- HCl, 3- H <sub>2</sub> SO <sub>4</sub> , 4- HNO <sub>3</sub> , 5- NaOH, 6- MeOH, 7- Asorbic Acid, 8- ZnAct, 9- _____					
Seals Intact	<input checked="" type="checkbox"/> Yes	No	NA: <i>NA</i>	<input checked="" type="checkbox"/> Pickup	Sampled by: <i>Bill Davis</i>				
Cooler Temp:	<i>2.0 °C</i>		<i>W</i>	<input type="checkbox"/> Technicians	Comments:				

Relinquished by: (Signature) <i>B. Davis</i>	Date/Time <i>11/21/14 4:00pm</i>	Received by: (Signature) <i>W. Davis</i>	Date/Time <i>11/24/14 1435</i>	Relinquished by: (Signature) <i>m-mad</i>	Date/Time <i>11/24/14 1544</i>	Received by: (Signature) <i>W. Davis</i>	Date/Time <i>11/24/14 1605</i>
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time



**CERTIFICATE OF ANALYSIS**

Bill Davis  
GZA GeoEnvironmental, Inc.  
249 Vanderbilt Avenue  
Norwood, MA 02062

**RE: Grant Gear (01.0018605.00)**  
**ESS Laboratory Work Order Number: 1411520**

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard  
Laboratory Director

**REVIEWED**

**By ESS Laboratory at 1:34 pm, Dec 03, 2014**

**Analytical Summary**

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1411520

**SAMPLE RECEIPT**

The following samples were received on November 24, 2014 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has performed and reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

For EPH soil samples, the aromatic range results have been corrected for identified cartridge contaminant in accordance with the CAM protocol.

<b>Lab Number</b>	<b>Sample Name</b>	<b>Matrix</b>	<b>Analysis</b>
1411520-01	SED-1	Soil	8082A
1411520-02	SED-Duplicate	Soil	8082A
1411520-03	SED-2	Soil	8082A
1411520-04	SED-3	Soil	8082A



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1411520

**PROJECT NARRATIVE**

**No unusual observations noted.**

**End of Project Narrative.**

**DATA USABILITY LINKS**

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1411520

**CURRENT SW-846 METHODOLOGY VERSIONS**

**Analytical Methods**

1010A - Flashpoint  
6010C - ICP  
6020A - ICP MS  
7010 - Graphite Furnace  
7196A - Hexavalent Chromium  
7470A - Aqueous Mercury  
7471B - Solid Mercury  
8011 - EDB/DBCP/TCP  
8015D - GRO/DRO  
8081B - Pesticides  
8082A - PCB  
8100M - TPH  
8151A - Herbicides  
8260B - VOA  
8270D - SVOA  
8270D SIM - SVOA Low Level  
9014 - Cyanide  
9038 - Sulfate  
9040C - Aqueous pH  
9045D - Solid pH (Corrosivity)  
9050A - Specific Conductance  
9056A - Anions (IC)  
9060A - TOC  
9095B - Paint Filter  
MADEP 04-1.1 - EPH / VPH

**Prep Methods**

3005A - Aqueous ICP and Graphite Furnace Digestion  
3020A - Aqueous ICP MS Digestion  
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion  
3060A - Solid Hexavalent Chromium Digestion  
3510C - Separatory Funnel Extraction  
3520C - Liquid / Liquid Extraction  
3540C - Manual Soxhlet Extraction  
3541 - Automated Soxhlet Extraction  
3546 - Microwave Extraction  
3580A - Waste Dilution  
5030B - Aqueous Purge and Trap  
5030C - Aqueous Purge and Trap  
5035 - Solid Purge and Trap



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1411520

**MassDEP Analytical Protocol Certification Form**

MADEP RTN: \_\_\_\_\_

This form provides certification for the following data set: **1411520-01 through 1411520-04**

Matrices:  Ground Water/Surface Water  Soil/Sediment  Drinking Water  Air  Other: \_\_\_\_\_

**CAM Protocol (check all that apply below):**

- |   |  |   |   |   |  |
|---|--|---|---|---|--|
| <input type="checkbox"/> 8260 VOC<br>CAM II A     | <input type="checkbox"/> 7470/7471 Hg<br>CAM III B | <input type="checkbox"/> MassDEP VPH<br>CAM IV A        | <input type="checkbox"/> 8081 Pesticides<br>CAM V B     | <input type="checkbox"/> 7196 Hex Cr<br>CAM VI B            | <input type="checkbox"/> MassDEP APH<br>CAM IX A |
| <input type="checkbox"/> 8270 SVOC<br>CAM II B    | <input type="checkbox"/> 7010 Metals<br>CAM III C  | <input type="checkbox"/> MassDEP EPH<br>CAM IV B        | <input type="checkbox"/> 8151 Herbicides<br>CAM V C     | <input type="checkbox"/> 8330 Explosives<br>CAM VIII A      | <input type="checkbox"/> TO-15 VOC<br>CAM IX B   |
| <input type="checkbox"/> 6010 Metals<br>CAM III A | <input type="checkbox"/> 6020 Metals<br>CAM III D  | <input checked="" type="checkbox"/> 8082 PCB<br>CAM V A | <input type="checkbox"/> 6860 Perchlorate<br>CAM VIII B | <input type="checkbox"/> 9014 Total Cyanide/PAC<br>CAM VI A |  |

**Affirmative responses to questions A through F are required for Presumptive Certainty'status**

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes  No  ( )
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes  No  ( )
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes  No  ( )
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes  No  ( )
- E a. VPH, EPH, APH and TO-15 only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes  No  ( )
- b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes  No  ( )
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes  No  ( )

**Responses to Questions G, H and I below are required for Presumptive Certainty'status**

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)? Yes  No  ( )\*

**Data User Note: Data that achieve Presumptive Certainty'status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.**

- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes  No  ( )\*

- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes  No  ( )\*

\*All negative responses must be addressed in an attached laboratory narrative.

***I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.***

Signature: \_\_\_\_\_

Printed Name: Laurel Stoddard

Date: December 03, 2014

Position: Laboratory Director



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: SED-1

Date Sampled: 11/21/14 09:51

Percent Solids: 79

Initial Volume: 19.9

Final Volume: 10

Extraction Method: 3540C

ESS Laboratory Work Order: 1411520

ESS Laboratory Sample ID: 1411520-01

Sample Matrix: Soil

Units: mg/kg dry

Analyst: JXS

Prepared: 11/24/14 18:03

Cleanup Method: 3665A

**8082A Polychlorinated Biphenyls (PCB)**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Aroclor 1016	ND (0.0634)		8082A		1	11/26/14 0:36		CK42402
Aroclor 1221	ND (0.0634)		8082A		1	11/26/14 0:36		CK42402
Aroclor 1232	ND (0.0634)		8082A		1	11/26/14 0:36		CK42402
Aroclor 1242	ND (0.0634)		8082A		1	11/26/14 0:36		CK42402
Aroclor 1248	ND (0.0634)		8082A		1	11/26/14 0:36		CK42402
Aroclor 1254	ND (0.0634)		8082A		1	11/26/14 0:36		CK42402
Aroclor 1260	ND (0.0634)		8082A		1	11/26/14 0:36		CK42402
Aroclor 1262	ND (0.0634)		8082A		1	11/26/14 0:36		CK42402
Aroclor 1268	ND (0.0634)		8082A		1	11/26/14 0:36		CK42402

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	105 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	84 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	88 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	92 %		30-150



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: SED-Duplicate

Date Sampled: 11/21/14 10:03

Percent Solids: 80

Initial Volume: 20.7

Final Volume: 10

Extraction Method: 3540C

ESS Laboratory Work Order: 1411520

ESS Laboratory Sample ID: 1411520-02

Sample Matrix: Soil

Units: mg/kg dry

Analyst: JXS

Prepared: 11/24/14 18:03

Cleanup Method: 3665A

**8082A Polychlorinated Biphenyls (PCB)**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Aroclor 1016	ND (0.0603)		8082A		1	11/26/14 0:55		CK42402
Aroclor 1221	ND (0.0603)		8082A		1	11/26/14 0:55		CK42402
Aroclor 1232	ND (0.0603)		8082A		1	11/26/14 0:55		CK42402
Aroclor 1242	ND (0.0603)		8082A		1	11/26/14 0:55		CK42402
Aroclor 1248	ND (0.0603)		8082A		1	11/26/14 0:55		CK42402
Aroclor 1254	ND (0.0603)		8082A		1	11/26/14 0:55		CK42402
Aroclor 1260	ND (0.0603)		8082A		1	11/26/14 0:55		CK42402
Aroclor 1262	ND (0.0603)		8082A		1	11/26/14 0:55		CK42402
Aroclor 1268	ND (0.0603)		8082A		1	11/26/14 0:55		CK42402

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	111 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	90 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	92 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	97 %		30-150



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: SED-2

Date Sampled: 11/21/14 10:16

Percent Solids: 78

Initial Volume: 19.6

Final Volume: 10

Extraction Method: 3540C

ESS Laboratory Work Order: 1411520

ESS Laboratory Sample ID: 1411520-03

Sample Matrix: Soil

Units: mg/kg dry

Analyst: JXS

Prepared: 11/24/14 18:03

Cleanup Method: 3665A

**8082A Polychlorinated Biphenyls (PCB)**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Aroclor 1016	ND (0.0657)		8082A		1	11/26/14 1:14		CK42402
Aroclor 1221	ND (0.0657)		8082A		1	11/26/14 1:14		CK42402
Aroclor 1232	ND (0.0657)		8082A		1	11/26/14 1:14		CK42402
Aroclor 1242	ND (0.0657)		8082A		1	11/26/14 1:14		CK42402
Aroclor 1248	ND (0.0657)		8082A		1	11/26/14 1:14		CK42402
Aroclor 1254	ND (0.0657)		8082A		1	11/26/14 1:14		CK42402
Aroclor 1260	ND (0.0657)		8082A		1	11/26/14 1:14		CK42402
Aroclor 1262	ND (0.0657)		8082A		1	11/26/14 1:14		CK42402
Aroclor 1268	ND (0.0657)		8082A		1	11/26/14 1:14		CK42402

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	111 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	89 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	92 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	100 %		30-150



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

Client Sample ID: SED-3

Date Sampled: 11/21/14 10:20

Percent Solids: 82

Initial Volume: 19.6

Final Volume: 10

Extraction Method: 3540C

ESS Laboratory Work Order: 1411520

ESS Laboratory Sample ID: 1411520-04

Sample Matrix: Soil

Units: mg/kg dry

Analyst: JXS

Prepared: 11/24/14 18:03

Cleanup Method: 3665A

**8082A Polychlorinated Biphenyls (PCB)**

<b>Analyte</b>	<b>Results (MRL)</b>	<b>MDL</b>	<b>Method</b>	<b>Limit</b>	<b>DF</b>	<b>Analyzed</b>	<b>Sequence</b>	<b>Batch</b>
Aroclor 1016	ND (0.0625)		8082A		1	11/26/14 1:33		CK42402
Aroclor 1221	ND (0.0625)		8082A		1	11/26/14 1:33		CK42402
Aroclor 1232	ND (0.0625)		8082A		1	11/26/14 1:33		CK42402
Aroclor 1242	ND (0.0625)		8082A		1	11/26/14 1:33		CK42402
<b>Aroclor 1248</b>	<b>1.51 (0.312)</b>		8082A		5	11/27/14 2:41		CK42402
Aroclor 1254	ND (0.0625)		8082A		1	11/26/14 1:33		CK42402
Aroclor 1260	ND (0.0625)		8082A		1	11/26/14 1:33		CK42402
Aroclor 1262	ND (0.0625)		8082A		1	11/26/14 1:33		CK42402
Aroclor 1268	ND (0.0625)		8082A		1	11/26/14 1:33		CK42402

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	124 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	100 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	101 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	112 %		30-150



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1411520

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

**Batch CK42402 - 3540C**

**Blank**

Aroclor 1016	ND	0.0500	mg/kg wet							
Aroclor 1221	ND	0.0500	mg/kg wet							
Aroclor 1232	ND	0.0500	mg/kg wet							
Aroclor 1242	ND	0.0500	mg/kg wet							
Aroclor 1248	ND	0.0500	mg/kg wet							
Aroclor 1254	ND	0.0500	mg/kg wet							
Aroclor 1260	ND	0.0500	mg/kg wet							
Aroclor 1262	ND	0.0500	mg/kg wet							
Aroclor 1268	ND	0.0500	mg/kg wet							

*Surrogate: Decachlorobiphenyl* 0.0201 mg/kg wet 0.02500 80 30-150

*Surrogate: Decachlorobiphenyl [2C]* 0.0167 mg/kg wet 0.02500 67 30-150

*Surrogate: Tetrachloro-m-xylene* 0.0163 mg/kg wet 0.02500 65 30-150

*Surrogate: Tetrachloro-m-xylene [2C]* 0.0164 mg/kg wet 0.02500 66 30-150

**LCS**

Aroclor 1016	0.437	0.0500	mg/kg wet	0.5000	87	40-140				
Aroclor 1260	0.415	0.0500	mg/kg wet	0.5000	83	40-140				

*Surrogate: Decachlorobiphenyl* 0.0217 mg/kg wet 0.02500 87 30-150

*Surrogate: Decachlorobiphenyl [2C]* 0.0183 mg/kg wet 0.02500 73 30-150

*Surrogate: Tetrachloro-m-xylene* 0.0194 mg/kg wet 0.02500 77 30-150

*Surrogate: Tetrachloro-m-xylene [2C]* 0.0204 mg/kg wet 0.02500 82 30-150

**LCS Dup**

Aroclor 1016	0.455	0.0500	mg/kg wet	0.5000	91	40-140	4	30		
Aroclor 1260	0.447	0.0500	mg/kg wet	0.5000	89	40-140	7	30		

*Surrogate: Decachlorobiphenyl* 0.0242 mg/kg wet 0.02500 97 30-150

*Surrogate: Decachlorobiphenyl [2C]* 0.0198 mg/kg wet 0.02500 79 30-150

*Surrogate: Tetrachloro-m-xylene* 0.0203 mg/kg wet 0.02500 81 30-150

*Surrogate: Tetrachloro-m-xylene [2C]* 0.0215 mg/kg wet 0.02500 86 30-150



**CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Grant Gear

ESS Laboratory Work Order: 1411520

**Notes and Definitions**

U	Analyte included in the analysis, but not detected
D	Diluted.
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report



### **CERTIFICATE OF ANALYSIS**

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Grant Gear

ESS Laboratory Work Order: 1411520

### **ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS**

#### **ENVIRONMENTAL**

Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP)  
A2LA Accredited: Testing Cert# 2864.01  
<http://www.a2la.org/scopepdf/2864-01.pdf>

Rhode Island Potable and Non Potable Water: LAI00179  
<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750  
[http://www.ct.gov/dph/lib/dph/environmental\\_health/environmental\\_laboratories/pdf/OutofStateCommercialLaboratories.pdf](http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf)

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI0002  
<http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls>

Massachusetts Potable and Non Potable Water: M-RI002  
<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424  
<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313  
<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006  
[http://datamine2.state.nj.us/DEP\\_OPRA/OpraMain/pi\\_main?mode=pi\\_by\\_site&sort\\_order=PI\\_NAMEA&Select+a+Site:=58715](http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715)

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752  
[http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory\\_accreditation\\_program/590095](http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095)

#### **CHEMISTRY**

A2LA Accredited: Testing Cert # 2864.01  
Lead in Paint, Phthalates, Lead in Children's Metals Products (Including Jewelry)  
<http://www.A2LA.org/dirsearchnew/newsearch.cfm>

CPSC ID# 1141  
Lead Paint, Lead in Children's Metals Jewelry  
<http://www.cpsc.gov/cgi-bin/labapplist.aspx>

**Sample and Cooler Receipt Checklist**Client: GZA GeoEnvironmental, Inc.

Client Project ID: \_\_\_\_\_

Shipped/Delivered Via: ESS CourierESS Project ID: 14110520Date Project Due: 12/1/2014Days For Project: 5 Day**Items to be checked upon receipt:**

1. Air Bill Manifest Present?

 \* No

Air No.: \_\_\_\_\_

2. Were Custody Seals Present?

 Yes

3. Were Custody Seals Intact?

 Yes

4. Is Radiation count &lt; 100 CPM?

 Yes

5. Is a cooler present?

 Yes**Cooler Temp: 2.0****Iced With: Ice**

6. Was COC included with samples?

 Yes

7. Was COC signed and dated by client?

 Yes

8. Does the COC match the sample

 Yes

9. Is COC complete and correct?

 Yes

10. Are the samples properly preserved?

 Yes

11. Proper sample containers used?

 Yes

12. Any air bubbles in the VOA vials?

 N/A

13. Holding times exceeded?

 No

14. Sufficient sample volumes?

 Yes

15. Any Subcontracting needed?

 No16. Are ESS labels on correct containers?  Yes |  No17. Were samples received intact?  Yes |  No

ESS Sample IDs: \_\_\_\_\_

Sub Lab: \_\_\_\_\_

Analysis: \_\_\_\_\_

TAT: \_\_\_\_\_

18. Was there need to call project manager to discuss status? If yes, please explain.

---



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---



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Who was called?: \_\_\_\_\_

By whom? \_\_\_\_\_

Sample Number	Properly Preserved	Container Type	# of Containers	Preservative
1	Yes	4 oz Soil Jar	1	NP
2	Yes	4 oz Soil Jar	1	NP
3	Yes	4 oz Soil Jar	1	NP
4	~ Yes	4 oz Soil Jar	1	NP

Completed By: M. Martin Date/Time: 11/24/14 16:01Reviewed By: WJ Date/Time: 11/24/14 16:08

# ESS Laboratory

Division of Thielsch Engineering, Inc.  
185 Frances Avenue, Cranston, RI 02910-2211  
Tel. (401) 461-7181 Fax (401) 461-4486  
www.esslaboratory.com

# CHAIN OF CUSTODY

Page 2 of 2

1 of 1 11/24/14

Turn Time	<input checked="" type="checkbox"/> Standard	Other _____	Reporting Limits	ESS LAB PROJECT ID
If faster than 5 days, prior approval by laboratory is required # _____				
State where samples were collected from: MA RI CT NH NJ NY ME Other _____				
Is this project for any of the following: MA-MCP Navy USACE Other _____			Electronic Deliverable <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Format: Excel <input type="checkbox"/> Access <input type="checkbox"/> PDF <input checked="" type="checkbox"/> Other	

Co. Name <i>C-2A</i>			Project # <i>18605.00</i>	Project Name (20 Char. or less) <i>Grant Gear</i>		Number of Containers	Circle and/or Write Required Analysis													
Contact Person <i>Bill Davis</i>			Address <i>249 Waverly Ave</i>		Zip <i>02062</i>		PO#	Type of Containers 8030 624 524.2 8021 8015 VPH MTBUTEX GRO w/targets 8100 8015 EPH TPH w/o PAHs Diesel 8081 608 Pesticides w/o PCBs PCB 8270 625 PAH SVOA 8270 8270 RCRAS RCRAS PP13 TAL23 TCLP-TCLP NBC7 MCP-METALS (13) w/Hg METALS (13)												
City <i>New Bedford</i>	State <i>MA</i>	Telephone # <i>781-983-1353</i>	Fax #	Email Address <i>welavis@9291.com</i>																
ESS LAB Sample#	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)		Pres Code												
1	11/21/14	9:51am	X	S		SED-1			1	1	A									
2		10:03am	X	S		SED- Duplicate			1	1										
3		10:16am	X	S		SED-2			1	1										
4		10:20am	X	S		SED-3			1	1										
		9:59am	X	Sw		Sw-1			1	1										
		10:02am	X	Sw		Sw- Duplicate			1	1										
		10:15am	X	Sw		Sw-2			1	1										
		10:20am		Sw		Sw-3			1	1										

Container Type: P-Poly G-Glass S-Sterile V-VOA Matrix: S-Soil SD-Solid D-Sludge WW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters

Cooler Present  Yes  No Internal Use Only Preservation Code: 1- NP, 2- HCl, 3- H<sub>2</sub>SO<sub>4</sub>, 4- HNO<sub>3</sub>, 5- NaOH, 6- MeOH, 7- Ascorbic Acid, 8- ZnAct, 9- \_\_\_\_\_

Seals Intact  Yes  No NA:  Pickup Sampled by: *Bill Davis*

Cooler Temp: *24.0 °C*  Technicians  Comments:

Relinquished by: (Signature) <i>Bill Davis</i>	Date/Time <i>11/21/14 4:00pm</i>	Received by: (Signature) <i>John Smith</i>	Date/Time <i>11/24/14 14:35</i>	Relinquished by: (Signature) <i>John Smith</i>	Date/Time <i>11/24/14 15:44</i>	Received by: (Signature) <i>John Smith</i>	Date/Time <i>11/24/14 16:05</i>
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

\*By circling MA-MCP, client acknowledges samples were collected in accordance with MADEP CAM VII A

Please fax all changes to Chain of Custody in writing.

1 (White) Lab Copy 2 (Yellow) Client Rec



*Proactive by Design*

## APPENDIX D

### FIELD NOTES

GZA GEOENVIRONMENTAL INC.  
One Edgewater Drive, Norwood, MA  
Engineers and Scientists

PROJECT  
Grant Year

File Number: 18605  
Date: 6/30/14

## WELL INFORMATION

Monitoring Well ID MW-1A

Measuring Point: PVC  X  
TOC

Well Construction: PVC  Other

Well Locked: Yes \_\_\_\_\_  
No J

Well Diameter:

#### **WELL PURGING INFORMATION**

Equipment: water level

Start Time:

Stop Time:

Well Depth:  feet

Length of Water Column:  feet x  0.275 (1.5') =  gallons  
                                   0.4896 (2')      Other  =  3 x Standing Volume

Depth to Product:  feet

Average Flow Rate:  gallons/min

Depth to Water: 13, 11 feet

Total Volume Purged: \_\_\_\_\_ gallons

## **SAMPLING INFORMATION**

Equipment:

Time: \_\_\_\_\_

Analysis	Field Filtered	Preservative	Container	Number of Samples
8260/8082	N	HCl	V/G	45

## FIELD ANALYSIS DATA

	0.1	3%	3%	10%	10mV	10%	
Purge Volume (gallons)	pH	Temperature (°C)	Specific Conductivity (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
940	6.31	16.55	1170	15.44	-70.1		
943	6.12	16.33	1105	10.33	-62.5		
946	5.90	16.47	1084	6.71	-49.7		
949	5.80	16.44	1075	2.19	-40.0		
952	5.76	16.64	980	1.55	-34.3		
955	5.70	16.70	947	1.40	-31.5		
957	5.67	16.80	905	1.27	-21.8		
1000	5.64	16.87	876	1.05	-21.2		

---

**NOTES**

Sampled @ 1000 am

GZA GEOENVIRONMENTAL INC.  
One Edgewater Drive, Norwood, MA  
Engineers and Scientists

PROJECT

Grant Goss

File Number: 18605  
Date: 6/30/14

WELL INFORMATION

Monitoring Well ID ME-17 (cm)

Measuring Point: PVC  Well Construction: PVC  Well Locked: Yes   
TOC  Other  No   
Well Diameter:

WELL PURGING INFORMATION

Equipment: water  Start Time:  Stop Time:   
Well Depth:  feet Length of Water Column:  feet x 0.275 (1.5") = 3 x Standing Volume  
0.4896 (2") Other  gallons  
Depth to Product:  feet Average Flow Rate:  gallons/min  
Depth to Water: 12.62 feet Total Volume Purged:  gallons

SAMPLING INFORMATION

Equipment: YSI  Time:

Analysis	Field Filtered	Preservative	Container	Number of Samples
8260/8082	N	HCl	V/G	5

FIELD ANALYSIS DATA

Purge Volume (gallons)	0.1 pH	3% Temperature (°C)	3% Specific Conductivity (µS/cm)	10% DO (mg/L)	10mV ORP (mV)	10% Turbidity (NTU)	Depth to Water (feet)
1020	7.26	16.22	1215	42.74	67.6		
1023	6.88	15.81	1228	21.70	111.6		
1026	6.70	15.72	1236	17.36	126.5		
1029	6.63	15.59	1242	18.23	128.1		
1032	6.59	15.52	1253	19.89	125.7		
1035	6.55	15.48	1268	20.99	129.5		
1038	6.59	15.42	1272	19.64	127.1		
1041	6.59	15.40	1275	19.22	126.8		

NOTES

Sampled at 1045 am

Duplicate collected  
at this location  
at 11:00 am

**GZA GEOENVIRONMENTAL INC.**  
One Edgewater Drive, Norwood, MA  
**Engineers and Scientists**

PROJECT

File Number: 18605  
Date: 6/30/14

## WELL INFORMATION

Monitoring Well ID ME-10

Measuring Point: PVC  TOC

Well Construction: PVC  Other

Well Locked: Yes  No

Well Diameter:

#### **WELL PURGING INFORMATION**

Equipment: water bottle

Start Time:

Stop Time:

Well Depth:  feet

$$\text{Length of Water Column: } \boxed{\phantom{000}} \text{ feet} \times \begin{array}{l} \underline{0.275 \text{ (1.5')}} \\ \underline{0.4896 \text{ (2')}} \\ \text{Other} \end{array} = \boxed{\phantom{00000}} \text{ gallons}$$

Depth to Product:  feet

Average Flow Rate:  gallons/min

Depth to Water: 12.89 feet

Total Volume Purged:  gallons

---

**SAMPLING INFORMATION**

---

Equipment: Y51

Time: \_\_\_\_\_

Analysis	Field Filtered	Preservative	Container	Number of Samples
8260 / 8082	W.	HCl	V/F	5

## FIELD ANALYSIS DATA

	0.1	3%	3%	10%	10mV	10%	
Purge Volume (gallons)	pH	Temperature (°C)	Specific Conductivity (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
11/12	6.75	15.81	1229	10.89	51.1		
11/15	7.25	14.44	1121	8.65	25.5		
11/18	7.25	13.16	998	6.13	9.8		
11/21							

---

**NOTES**

Sampled @ 230 nm

ran dry & allowed to  
recharge

GZA GEOENVIRONMENTAL INC.  
One Edgewater Drive, Norwood, MA  
Engineers and Scientists

PROJECT

File Number: 18605  
Date: 6/30/14

## WELL INFORMATION

Monitoring Well ID MW- Ew-11

### Measuring Point:

Well Construction: PVC

Well Locked: Yes  No

TOC

Other

No 87

Well Diameter:

#### **WELL PURGING INFORMATION**

Equipment: winter level

Start Time:

Stop Time:

Well Depth:  feet

$$\text{Length of Water Column: } \boxed{\phantom{000}} \text{ feet} \times \begin{cases} 0.275 \text{ (1.5')} \\ 0.4896 \text{ (2')} \\ \text{Other} \end{cases} = \boxed{\phantom{00000}} \text{ gallons}$$

Depth to Product:  feet

Average Flow Rate:  gallons/min

Depth to Water: **1249** feet

Total Volume Purged: \_\_\_\_\_ gallons

## SAMPLING INFORMATION

Equipment:  YS

Time: \_\_\_\_\_

Analysis	Field Filtered	Preservative	Container	Number of Samples
8260/8082	✓	HCl	V/C	5

## FIELD ANALYSIS DATA

Purge Volume (gallons)	0.1 pH	3% Temperature (°C)	3% Specific Conductivity (µS/cm)	10% DO (mg/L)	10mV ORP (mV)	10% Turbidity (NTU)	Depth to Water (feet)
1	8.06	16.37	526	39.79	121.5		
1.25	7.96	15.56	517	19.79	124.5		
1.50	7.57	15.41	499	12.74	148.6		
1.75	7.71	15.14	493	8.51	162.9		
1.0	7.29	14.98	491	8.62	166.1		
1.25	7.74	14.94	490	7.18	156.3		
1.50	7.37	14.73	488	7.59	149.8		
1.75	7.38	14.92	487	8.51	147.2		

---

**NOTES**

Sampled @ 11:58 am

GZA GEOENVIRONMENTAL INC.  
One Edgewater Drive, Norwood, MA  
Engineers and Scientists

PROJECT

File Number: 18605  
Date: 6/30/14

## **WELL INFORMATION**

Monitoring Well ID B-28

Measuring Point: PVC  X  
TOC

Well Construction: PVC  Other

Well Locked: Yes   
No

Well Diameter:

#### **WELL PURGING INFORMATION**

Equipment: water (etc)

Start Time:

Stop Time:

Well Depth:  feet

$$\text{Length of Water Column: } \boxed{\phantom{000}} \text{ feet} \times \begin{array}{l} \boxed{0.275 \text{ (1')}} \\ \boxed{0.4896 \text{ (2')}} \\ \text{Other} \end{array} = \boxed{\phantom{00000}} \text{ gallons}$$

Depth to Product:  feet

Average Flow Rate:  gallons/min

Depth to Water: **11.38** feet

Total Volume Purged:  gallons

## SAMPLING INFORMATION

Equipment: 451

Time:

Analysis	Field Filtered	Preservative	Container	Number of Samples
8082 / 8260	✓	HCL	V/G	5

---

## FIELD ANALYSIS DATA

---

	0.1	3%	3%	10%	10mV	10%	
Purge Volume (gallons)	pH	Temperature (°C)	Specific Conductivity (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
1	7.36	20.02	3144	85.42	133.7		
2.5	7.09	20.04	3131	74.25	144.9		
1.50	6.95	19.94	3128	70.81	150.2		
1.75	6.81	19.97	3098	68.44	154.8		
1.0	6.78	19.78	3092	68.02	148.1		
1.25	6.76	19.71	3073	66.93	141.6		
1.50	6.79	19.67	3071	64.21	139.9		
1.75	6.77	19.54	3082	65.47	137.8		

---

## NOTES

Sampled at 130pm

**GZA GEOENVIRONMENTAL INC.**  
One Edgewater Drive, Norwood, MA  
**Engineers and Scientists**

## PROJECT

File Number: 18605  
Date: 6/30/14

## WELL INFORMATION

Monitoring Well ID MW-3AR

Measuring Point: PVC  TOC

Well Construction: PVC

Well Locked: Yes   
No

Well Diameter:

## **WELL PURGING INFORMATION**

Equipment: water level

Start Time:

Stop Time:

Well Depth:  feet

Length of Water Column:  feet x  0.4896 (2") =  gallons  
3 x Standing Volume

Depth to Product: \_\_\_\_\_ feet

Average Flow Rate: \_\_\_\_\_ gallons/min

Depth to Water: **376** feet

Total Volume Purged: \_\_\_\_\_ gallons

---

**SAMPLING INFORMATION**

---

Equipment:

Time:

Analysis	Field Filtered	Preservative	Container	Number of Samples
8460 / 8082	✓	HCC	V/G	5

## FIELD ANALYSIS DATA

	0.1	3%	3%	10%	10mV	10%	
Purge Volume (gallons)	pH	Temperature (°C)	Specific Conductivity (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
140	7.1	16.47	188	18.01	-104.9		
143	7.25	16.58	159	12.93	-95.4		
146	7.29	16.66	142	12.05	-91.7		
149	7.15	16.62	135	11.44	-90.7		
152	7.07	16.69	123	11.47	-97.4		
155	7.05	16.67	117	11.29	-101.9		
158	7.06	16.72	112	11.04	-106.3		
292	7.08	16.74	110	10.82	-107.8		
44							

---

## NOTES

Symphoc @ 215 μm



GZA GEOENVIRONMENTAL INC.  
One Edgewater Drive, Norwood, MA  
Engineers and Scientists

PROJECT  
Grant Gear

File Number 18605  
Date: 11/21/2014

---

**WELL INFORMATION**

Monitoring Well ID ME-17 (84)

Measuring Point: PVC  X  
TOC

Well Construction: PVC  X   
Other

Well Locked: Yes

Well Diameter:

#### **WELL PURGING INFORMATION**

Equipment: Water Level Meter

Start Time:

Stop Time:

Well Depth:  feet

Length of Water Column:  feet x  =  gallons

Depth to Product:  feet

Average Flow Rate: \_\_\_\_\_ gallons/min

Depth to Water: **12.13'** feet

Total Volume Purged:  gallons

---

**SAMPLING INFORMATION**

Equipment:  YSI

Time: \_\_\_\_\_

Analysis	Field Filtered	Preservative	Container	Number of Samples
8260/8082	✓	HCl/Na	VFA	4

## FIELD ANALYSIS DATA

---

## NOTES

SAMPLED @ 1143<sub>nm</sub>

GZA GEOENVIRONMENTAL INC.  
One Edgewater Drive, Norwood, MA  
Engineers and Scientists

PROJECT  
Grant Gear

File Number 18605  
Date: 11/21/2014

## **WELL INFORMATION**

Monitoring Well ID ME-19

Measuring Point: PVC  X  
TOC

Well Construction: PVC  X   
Other

Well Locked: Yes   
No  X

Well Diameter:

#### **WELL PURGING INFORMATION**

Equipment: Water Level Meter

Start Time:

Stop Time:

Well Depth:  feet

Length of Water Column:  feet x  0.275 (1.5") =  3 x Standing Volume  
 0.4896 (2") =  gallons

Depth to Product:  feet

Average Flow Rate:  gallons/min

Depth to Water: 12.67' feet

Total Volume Purged: \_\_\_\_\_ gallons

## SAMPLING INFORMATION

Equipment:  YSI

Time:

Analysis	Field Filtered	Preservative	Container	Number of Samples
8260/8082	✓	HCl / NTA	TA	4

## FIELD ANALYSIS DATA

---

**NOTES**

SAMPLED @

115  $\mu$ m

Ran dry, waited for re-charge & collected sample

GZA GEOENVIRONMENTAL INC.  
One Edgewater Drive, Norwood, MA  
Engineers and Scientists

PROJECT  
Grant Gear

File Number 18605  
Date: 11/21/2014

## WELL INFORMATION

Monitoring Well ID MW-EW-11

Measuring Point: PVC  X Well Construction: PVC  X Well Locked: Yes   
TOC  Other  No  X  
Well Diameter:

#### **WELL PURGING INFORMATION**

Equipment:	Water Level Meter	Start Time:	<input type="text"/>	Stop Time:	<input type="text"/>	
Well Depth:	<input type="text"/> feet	Length of Water Column:	<input type="text"/> feet	x	<input type="checkbox"/> 0.275 (1.5") <input type="checkbox"/> 0.4896 (2") <input type="checkbox"/> Other	= <input type="text"/> gallons
Depth to Product:	<input type="text"/> feet	Average Flow Rate:	<input type="text"/> gallons/min			
Depth to Water:	<input type="text"/> 12.91 feet	Total Volume Purged:	<input type="text"/> gallons			

## SAMPLING INFORMATION

Equipment: YSI Time: \_\_\_\_\_

Analysis	Field Filtered	Preservative	Container	Number of Samples
8260/8082	✓	HCC / VFA	VFA	4

## FIELD ANALYSIS DATA

## NOTES

SAMPLED @ 1240 pm

GZA GEOENVIRONMENTAL INC.  
One Edgewater Drive, Norwood, MA  
Engineers and Scientists

PROJECT  
Grant Gear

File Number 18605  
Date: 11/21/2014

## WELL INFORMATION

Monitoring Well ID B-28

Measuring Point: PVC  X Well Construction: PVC  X Well Locked: Yes   
TOC  Other  No  X  
Well Diameter:

#### **WELL PURGING INFORMATION**

Equipment:	Water Level Meter	Start Time:		Stop Time:	
Well Depth:	<input type="text" value="12"/>	feet	Length of Water Column:	<input type="text" value="10"/>	feet x
Depth to Product:	<input type="text" value="10"/>	feet	Average Flow Rate:	<input type="text" value="0.05"/>	gallons/min
Depth to Water:	<input type="text" value="11.15"/>	feet	Total Volume Purged:	<input type="text" value="5.5"/>	gallons
			3 x Standing Volume		
			<input type="radio"/> 0.275 (1.5")	<input type="radio"/> 0.4896 (2")	<input type="radio"/> Other
			<input type="text" value="5.5"/>		

## SAMPLING INFORMATION

Equipment: **YSI** Time:

Analysis	Field Filtered	Preservative	Container	Number of Samples
8260/8082	✓	HCL / MIA	V/A	4

## FIELD ANALYSIS DATA

---

## NOTES

SAMPLED @

139 pm

GZA GEOENVIRONMENTAL INC.  
One Edgewater Drive, Norwood, MA  
Engineers and Scientists

PROJECT  
Grant Gear

File Number 18605  
Date: 11/21/2014

## **WELL INFORMATION**

Monitoring Well ID Mw-3AR

Measuring Point: PVC  X  
TOC

Well Construction: PVC  X  
Other

Well Locked: Yes   
No  X

Well Diameter:

#### **WELL PURGING INFORMATION**

Equipment: Water Level Meter

Start Time:

**Stop Time:**

Well Depth:  feet

$$\text{Length of Water Column: } \boxed{\phantom{000}} \text{ feet} \times \begin{array}{l} \underline{0.275 \text{ (1.5)}} \\ \underline{0.4896 \text{ (2')}} \\ \text{Other} \end{array} = \boxed{\phantom{00000}} \text{ gallons}$$

Depth to Product:  feet

Average Flow Rate:  gallons/min

Depth to Water: **2.75** feet

Total Volume Purged:  gallons

## SAMPLING INFORMATION

Equipment:  YSI

Time: \_\_\_\_\_

Analysis	Field Filtered	Preservative	Container	Number of Samples
8260/8082	N	HCL/NA	V/A	4

## FIELD ANALYSIS DATA

---

## NOTES

SAMPLED @ 215  $\mu$ m